

Appendix 1. Detailed summary of Region 1 I&M accomplishments for FY 2012 and projects to be initiated in FY 2013 by 7-Year Plan focus groups. AD – Abiotic Data, AQB – Air Quality Biomonitoring, BBI – Baseline Biotic Inventories, BIM – Bird Inventory and Monitoring, DM – Data Management, EIP – Ecological Information Planning, ESARR – Endangered Species Act Refuge Reporting, FM – Fire Monitoring, ISIM – Invasive Species Inventory and Monitoring, MM – Marine Monitoring, PM – Phenological Monitoring, RCA – Refuge Conditions Assessment, RRP – Regional Refuge Portfolio, SLRM – Sea Level Rise Modeling, SSM – Surrogate Species Monitoring, SD – System Development, VHM - Vegetation and Habitat Mapping, WRIM – Water Resources Inventory and Monitoring, WCM – Wilderness Character Monitoring, WH – Wildlife Health

7-Year Plan Task	Task Description	FY 2012 Accomplishments	FY 2013 Work Plan
Region 1 I&M Priorities			
EIP 1.1	Approve and implement revised I&M policy (701 FW 2)	<ul style="list-style-type: none"> Reg. I&M Coordinator developed supplemental guidance for preparing refuge I&M plans based upon information entered into the PRIMR database. This supplemental guidance provides a consistent approach to step down Exhibit 1 in the I&M policy. 	<ul style="list-style-type: none"> As a member of the I&M Team, Region 1 I&M staff will facilitate approval of the policy and continue its implementation through development of refuge I&M plans.
EIP 1.2	Prioritize refuge I&M planning objectives and conduct needs assessments	<ul style="list-style-type: none"> Region 1 staff conducted a variation of needs assessments being conducted in other regions. Specifically, Zone I&M Biologists and I&M Specialist conducted site visits to 6 Region 1 refuges to populate PRIMR with current and needed surveys for a refuge. <ul style="list-style-type: none"> Oregon Coast NWRC (6 NWRs) 	<ul style="list-style-type: none"> Region 1 staff will conduct a variation of needs assessments being conducted in other regions. Specifically, Zone I&M Biologists and I&M Specialist will conduct site visits to Region 1 refuges to populate PRIMR with current and needed surveys for a refuge
EIP 1.3	Pilot I&M planning processes on refuges	<ul style="list-style-type: none"> Zone I&M Biologists and I&M Specialist conducted two rounds of beta testing for the survey prioritization guidance and associated SMART tool. Surveys were prioritized (Tiers I, II, or III) in PRIMR for the following 3 Region 1 refuges: <ul style="list-style-type: none"> James Campbell Umatilla Little Pend Orielle 	<ul style="list-style-type: none"> Zone I&M Biologists and I&M Specialist will assist refuge staffs with prioritizing (Tiers I, II, or III) surveys in PRIMR for the following 38 Region 1 refuges: <ul style="list-style-type: none"> Howland Baker Jarvis Oahu NWRC (2 refuges) Kauai NWRC (3 refuges) Hakalau Hawaiian Islands (Papahānaumokuākea MNM) Malheur Little Pend Oreille Columbia Washington Maritime NWRC (6 refuges) Willapa NWRC (3 refuges) Willamette Valley NWRC (3 refuges + 1 Unit) Oregon Coast NWRC (6 refuges) Ridgefield NWRC (4 refuges) Tualatin River (+ 1 Unit) Nisqually NWRC (2 refuges + 1 Unit)

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Region 1 I&M Priorities			
EIP 1.4	Initiate new refuge I&M plans	<ul style="list-style-type: none"> Zone I&M Biologists and I&M Specialist conducted site visits to work with refuge staffs to enter refuge surveys into the distributed PRIMR database; Reg. I&M Coordinator reviewed surveys entered into PRIMR; Zone I&M Biologists and I&M Specialist revised/updated surveys in refuge PRIMRs. The following 15 Region 1 refuges had surveys entered/updated in PRIMR: <ul style="list-style-type: none"> Howland Baker Jarvis Guam Rose Atoll Hanalei Kilauea Point Hule`ia Pearl Harbor Columbia Little Pend Oreille McNary Umatilla Saddle Mountain/Hanford Reach Ridgefield 	<ul style="list-style-type: none"> Zone I&M Biologists and I&M Specialist will conduct site visits to work with refuge staffs to enter refuge surveys into PRIMR. Reg. I&M Coordinator will review surveys entered into PRIMR. Zone I&M Biologists and I&M Specialist will revise/update surveys in PRIMR, as needed. The following 35 Region 1 refuges are expected for surveys to be entered/updated in PRIMR: <ul style="list-style-type: none"> Rose Atoll Palmyra Atoll Kingman Reef Midway Atoll Johnston Atoll Wake Atoll Marianas Trench MNM Oahu Forest Conboy Lake Toppenish Washington Maritime NWRC (6 refuges) Willapa NWRC (3 refuges) Willamette Valley NWRC (3 refuges + 1 Unit) Oregon Coast NWRC (6 refuges) Ridgefield NWRC (4 refuges) Tualatin River (+ 1 Unit) Nisqually NWRC (2 refuges + 1 Unit)
EIP 3.1	Finalize Survey Protocol Handbook (SPH) and develop example protocols	<ul style="list-style-type: none"> Brian Root, Zone I&M Biologist, represented Region 1 on the SPH team to develop the handbook. Reg. I&M Coordinator reviewed and commented on several drafts of the SPH. 	<ul style="list-style-type: none"> Brian Root, Zone I&M Biologist, will continue to represent Region 1 on SPH team to develop the handbook, as needed. Reg. I&M Coordinator will review and comment on drafts of the SHP.
EIP 4.1	Conduct joint I&M and Planning Chiefs meeting (Dec 2012)	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> Reg. 1 I&M Coordinator will participate at joint I&M and Planning Chiefs meeting in Fort Collins.
WRIM 1.2	WRIA data entered into WRIA database for 2 refuges/region	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> Based upon availability of the WRIA application, Region 1 staff will work in conjunction with Water Resources Branch to enter information for the following 1 Region 1 refuge into the database: <ul style="list-style-type: none"> Nestucca Bay
WRIM 1.5	Develop Region of Hydrologic Influence (RHI) and incorporate into WRIA process	<ul style="list-style-type: none"> Reg I&M Coordinator worked in conjunction with HQ and regional DEQ staffs to funding CAP database enhancements for the RHI. CAP database is linked with WRIA. 	<ul style="list-style-type: none"> Continue RHI enhancement of CAP database identified as an accomplishment in FY12.

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WRIM 1.6	Complete refuge WRIAs	<ul style="list-style-type: none"> Prepared a FY13 work plan for Region 1 refuge WRIAs that was focused upon inventory of spatial data (e.g., flow mapping, water rights). Completed WRIA reports for the following 1 Region 1 refuge: <ul style="list-style-type: none"> Camas Nestucca Bay 	<ul style="list-style-type: none"> Complete WRIA reports for the following 5 Region 1 refuges: <ul style="list-style-type: none"> Kealia Pond Conboy Lake Toppenish Bear Lake Grays Lake
WRIM 2.2	Evaluate completed HGMs	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> If identified for the working team, participate evaluate the HGM process.
WRIM 3.1	Enhance CAP database to integrate with WRIA process	<ul style="list-style-type: none"> See WRIM 1.5 	<ul style="list-style-type: none"> See WRIM 1.5
WRIM 4.2	Evaluate water pilot projects started in FY12	<ul style="list-style-type: none"> Identified Wapato Lake Unit of Tualatin River NWR as Region 1 refuge for pilot testing. Coordinated with refuge and Water Resources Branch staffs regarding the gaging station to measure water flow, discharge, and water quality parameters (temperature, DO, pH). 	<ul style="list-style-type: none"> Conduct an evaluation of water data collected during FY 2012 at Tualatin River NWR as a pilot site.
WRIM 4.4	Identify long-term water monitoring sites for each refuge (sentinel sites)	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> Region 1 I&M staff will coordinate with Water Resources Branch staff to identify sentinel sites for Region 1 refuges. Incorporate water quality and water quantity monitoring for these sentinel sites into PRIMR and refuge I&M plans, as needed.
WRIM 4.5	Identify national-level protocols for water quantity and water quality monitoring	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> Regional I&M Coordinator reviews documentation distributed for comment, as requested by National Water Team
WRIM 4.6	Where feasible, conduct monitoring at refuge sites (WRIM 4.4) using protocols developed under WRIM 4.5	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> Region 1 I&M staff coordinate with EQ, Water Resources Branch, and refuge staffs to support implementation considering available resources.
SD 4.1	Deploy centralized PRIMR for internal users	<ul style="list-style-type: none"> Reg. I&M Data Manager is a member of the UAT providing input to ECOS programmers for development of ServCAT. 	<ul style="list-style-type: none"> Reg. I&M Data Manager will continue to serve as a member of the UAT providing input to ECOS programmers for development of ServCAT.
SD 5.1	Develop and distribute PRIMR training materials	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> Review training materials, as requested by NRPC
SD 5.2	Conduct 2 PRIMR training sessions annually	<ul style="list-style-type: none"> Zone I&M Biologists and I&M Specialist conducted PRIMR training to refuge staffs in conjunction with population of PRIMR (see EIP 1.4) 	<ul style="list-style-type: none"> Zone I&M Biologists and I&M Specialist will continue to provide PRIMR training to refuge staffs in conjunction with population of PRIMR (see EIP 1.4)
DM 1.2	Upload 20% of refuge legacy documents into ServCat annually	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> Region 1 I&M staff will support refuge staffs with uploading select legacy documents (e.g., annual narratives) into ServCat.

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DM 2.1	Provide technical support to field staffs for use of ServCat	<ul style="list-style-type: none"> Reg. I&M Data Manager and Zone I&M Biologist supported implementation and evaluation of the ServCat pilot at Malheur NWR. Continued to provide support to this refuge staff will involve additional uploading of the documents in ServCat. Also, I&M purchased scanners for future use by other Region 1 refuges to scan and enter legacy documents into ServCat. 	<ul style="list-style-type: none"> Reg I&M Data Manager and Zone I&M Biologists will continue to provide training and support for use of ServCat by Region 1 refuge staffs.
DM 2.2	Perform QA/QC of data entered into ServCat	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> As needed, Reg. I&M Data Manager will conduct checks of information entered into ServCat for Region 1 refuges.
DM 2.3	Develop customized ServCat reports	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> As requested, Reg. I&M Data Manger will provide customized reports for data entered into ServCat for a Region 1 refuages.
DM 3.1	Enter current and needed surveys into PRIMR	<ul style="list-style-type: none"> Zone I&M Biologists and I&M Specialist conducted site visits to work with refuge staffs to enter refuge surveys into PRIMR. Reg. I&M Coordinator reviewed surveys entered into PRIMR. Zone I&M Biologists and I&M Specialist revised/updated surveys in PRIMR. The following 15 Region 1 refuges had surveys entered/updated in PRIMR: <ul style="list-style-type: none"> Howland Baker Jarvis Guam Rose Atoll Hanalei Kilauea Point Hule`ia Pearl Harbor Columbia Little Pend Oreille McNary Umatilla Saddle Mountain/Hanford Reach Ridgefield 	<ul style="list-style-type: none"> Zone I&M Biologists and I&M Specialist will conduct site visits to work with refuge staffs to enter refuge surveys into PRIMR. Reg. I&M Coordinator will review surveys entered into PRIMR. Zone I&M Biologists and I&M Specialist will revise/update surveys in PRIMR. The following 35 Region 1 refuges are expected to have surveys entered/updated in PRIMR: <ul style="list-style-type: none"> Rose Atoll Palmyra Atoll Kingman Reef Midway Atoll Johnston Atoll Wake Atoll Marianas Trench MNM Oahu Forest Conboy Lake Toppenish Washington Maritime NWRC (6 refuges) Willapa NWRC (3 refuges) Willamette Valley NWRC (3 refuges + 1 Unit) Oregon Coast NWRC (6 refuges) Ridgefield NWRC (4 refuges) Tualatin River (+ 1 Unit) Nisqually NWRC (2 refuges + 1 Unit)

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Region 1 I&M Priorities			
DM 4.1	Provide technical support for PRIMR to field users	<ul style="list-style-type: none"> Region 1 I&M staff provided support for use of the desktop version of PRIMR to refuge staffs in Region 1. 	<ul style="list-style-type: none"> Region 1 I&M staff will continue to provide support for use of the desktop version of PRIMR. Reg. I&M Data Manager will provide support for use of the centralized PRIMR to I&M and refuge staffs.
DM 4.2	Perform QA/QC of data entered into PRIMR	<ul style="list-style-type: none"> Reg I&M Data Manager conducted periodic checks of survey information entered into PRIMR for Region 1 refuges. 	<ul style="list-style-type: none"> Reg I&M Data Manager will conduct periodic checks of survey information being entered into PRIMR for Region 1 refuges
DM 4.3	Develop customized PRIMR reports	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> Reg. I&M Data Manager will provide PRIMR reports, as needed or requested.
ISIM 3.1	Prepare a draft report on invasive plant inventory pilots conducted on refuges during FY 2012 and FY13.	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> As a member of the invasive species team, Reg. I&M Coordinator will review report(s) prepared from completed refuge invasive plant inventories.
ESARR 1.2	Refuge staffs will validate listed species on refuges	<ul style="list-style-type: none"> Reg. I&M Data Manager and Reg. I&M Coordinator reviewed the Listed Species and draft DTS memo. 	<ul style="list-style-type: none"> As needed, Reg. I&M Data Manager and Reg. I&M Coordinator will provide support to Region 1 refuges to complete the validation process for each refuge as required through the DTS assignment.
BIM 1.1	Establish a NWRS Bird Monitoring Team and Working Groups to address a diversity of avian surveys needs for the FWS and refuges	<ul style="list-style-type: none"> Zone Biologists participate in routine conference calls for the NWRS Bird Monitoring Team. 	<ul style="list-style-type: none"> Zone Biologists will continue to participate in routine conference calls for the NWRS Bird Monitoring Team.
BBI 1.1	Identify sources of existing species observation data that can be used to pre-populate a species list database for refuges	<ul style="list-style-type: none"> In working with refuge staff to populate PRIMR, Zone Biologists and I&M Specialist mined CCP bird species lists and other sources of information regarding species occurrence on refuges. 	<ul style="list-style-type: none"> Continuing to work with refuge staff to populate PRIMR, Zone Biologists and I&M Specialist will mine CCP bird species lists and other sources of information regarding species occurrence on refuges.
PM 1.1	Analyze results of phenological survey distributed to refuge staffs	<ul style="list-style-type: none"> Region 1 I&M staff provided technical assistance and support for completion of phenological surveys by refuge staffs under the DTS assignment. 	<ul style="list-style-type: none"> NA
AM 1.1	Define levels of AM for the NWRS and identify the fundamental technical skills, tools, and resources needed to support monitoring	<ul style="list-style-type: none"> Region 1 I&M staff developed and supported beta testing of the Refuge Habitat Management Database (RHMD) supporting adaptive resource management at the refuge level. The beta testing involved a 3-day workshop in Vancouver, WA during December 2011. 	<ul style="list-style-type: none"> Distribute and provide support for the use of the RHMD especially on Region 1 refuges including: <ul style="list-style-type: none"> Malheur Toppenish Ankeny Baskett Slough Willapa Protection Island
AM 1.2	Prioritize, support and, if necessary, fund the highest regional priority items from the scope of work	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> As needed, Regional I&M Coordinator and other I&M staff will prioritize, support and, if necessary, fund the highest regional priority items from the scope of work to be developed during FY13.

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AM 1.4	National Annual Report/Work Plan summarizes the regional and multi-regional AM projects, tools, and software currently available for incorporation into the FY14 State of the Refuge Report	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Region 1 I&M staff will contribute to the development of the FY13 Annual Report/FY14 Work Plan considering AM projects, tools, and software (e.g., RHMD) appropriate for the FY14 State of the Refuge Report.
AM 1.5	Region 1 will make available the Refuge Habitat Management Database (RHMD) as an AM tool and provide the appropriate training to all interested staff	<ul style="list-style-type: none"> • Reg. I&M Data Manager facilitated the development of and beta testing for the RHMD in order to distribute version 2.0 at the beginning of FY13. 	<ul style="list-style-type: none"> • Region 1 I&M staff will distribute and provide support for the voluntary use of the RHMD on Region 1 refuges including Malheur, Toppenish, Baskett Slough, Ankeny, and Protection Island NWRs. Reg. I&M Data Manager and Reg. I&M Coordinator will continue to provide information about RHMD through the on-line HMP training offered by NCTC.
AM 1.6	Conduct a multi-regional needs assessment to identify the most pressing resource management issues across the NWRS that will be summarized in a white paper on AM	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Contribute to and provide review of the needs assessment and white paper about AM for the NWRS.
WCM 2.1	Evaluate whether wilderness character monitoring is represented in refuge I&M plans, where needed	<ul style="list-style-type: none"> • Zone I&M Biologists and I&M Specialist identified surveys in PRIMR for the following 3 individual refuges that would evaluate qualities of wilderness character: <ul style="list-style-type: none"> ○ Howland ○ Baker ○ Jarvis 	<ul style="list-style-type: none"> • Zone I&M Biologists and I&M Specialist will identify surveys in PRIMR for the following 5 individual refuges/complexes that would evaluate qualities of wilderness character: <ul style="list-style-type: none"> ○ Rose Atoll ○ Palmyra Atoll ○ Kingman Reef ○ Washington Maritime NWRC ○ Oregon Coastal NWRC
SSM 1.1	Review FWS surrogate species guidance document	<ul style="list-style-type: none"> • Reg. I&M Coordinator and Reg. I&M Data Manager participated in 2 meeting and 2 conference calls for preliminary discussions about surrogate species selections for Region 1. 	<ul style="list-style-type: none"> • Region 1 I&M staff will review surrogate species guidance document. Region 1 I&M staff will participate in the process to select surrogate species for Region 1.
SSM 1.2	Integrate the surrogate species monitoring with refuge IMPs and implement where appropriate	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Region 1 I&M staff will identify Region 1 refuges with identified surrogate species and include surveys into PRIMR, as needed.
SSM 1.3	Evaluate assumptions underlying the choice of surrogate species	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Region 1 I&M staff will review surrogate species guidance document and participate in the process to select surrogate species for Region 1.
FM 1.2	Identify and prioritize refuges that would benefit from a fire history atlas	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Region 1 I&M staff will coordinate with Regional Fire staff to identify and prioritize Region 1 refuges that would benefit from a fire atlas.

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Region 1 I&M Priorities			
MDM 1.3	Identify and prioritize abiotic and biotic data to characterize baseline conditions in the previously identified priority areas (see MDM 1.2)	<ul style="list-style-type: none"> In partnership with EQ staff, Reg. I&M Coordinator conducted a series conference calls/webinars to develop a baseline sampling scope of work. 	<ul style="list-style-type: none"> Reg. I&M Coordinator will meet with BSEE/BOEM staff to discuss partnership opportunities for water quality monitoring in marine ecosystems as well as the process to submit proposals through their ESP.
MDM 1.4	Incorporate appropriate baseline inventories previously identified in refuge I&M plans	<ul style="list-style-type: none"> Zone I&M Biologist worked with refuge staffs to incorporate baseline sampling (surveys) into Region 1 refuge I&M plans, as needed 	<ul style="list-style-type: none"> Zone I&M Biologist will continue working with refuge staffs to incorporate baseline sampling (surveys) into Region 1 refuge I&M plans, as needed
MDM 2.1	Identify IOOS capabilities located within or near refuges and conduct a meta-analysis to assess how this data can be used to assist with local management decisions	<ul style="list-style-type: none"> I&M Specialist in Honolulu (Jean Kenyon) co-authored a white paper with FWS Natl Marine Coordinator (Bret Wolfe) about incorporating Pacific remotes into IOOS and PacIOOS networks 	<ul style="list-style-type: none"> Subject white paper will be presented at a national IOOS conference to be held in Herndon, VA in November
MDM 2.2	Identify coastal and island refuges requiring physical seawater parameter (e.g., temperature, DO, pH, salinity, CO2) monitoring to determine the impacts of global climate change	<ul style="list-style-type: none"> Zone I&M Biologist and I&M Specialist worked with refuge staffs to incorporate physical seawater parameter monitoring into 3 Region 1 refuge I&M plans: <ul style="list-style-type: none"> Guam Rose Atoll Hawaiian Islands (Papahānaumokuākea MNM) 	<ul style="list-style-type: none"> Zone I&M Biologist and I&M Specialist will continue to work with refuge staffs to incorporate physical seawater parameter monitoring into the following 17 Region 1 refuge I&M plans, as needed: <ul style="list-style-type: none"> Palmyra Atoll Kingman Reef Wake Atoll Johnston Atoll Midway Atoll (Papahānaumokuākea MNM) Washington Maritime NWRC (6 refuges) Oregon Coast NWRC (6 refuges)
MDM 2.3	Identify coastal and island refuges requiring seawater quality monitoring (e.g., bacteria, nutrients, sediment) to determine impacts from sea level rise and anthropomorphic sources	<ul style="list-style-type: none"> Zone I&M Biologist and I&M Specialist worked with refuge staffs to incorporate physical seawater parameter monitoring into 1 Region 1 refuge I&M plans: <ul style="list-style-type: none"> Guam 	<ul style="list-style-type: none"> Zone I&M Biologist and I&M Specialist will continue to work with refuge staffs to incorporate physical seawater parameter monitoring into the following 14 Region 1 refuge I&M plans, as needed: <ul style="list-style-type: none"> Palmyra Atoll Kingman Reef Washington Maritime NWRC (6 refuges) Oregon Coast NWRC (6 refuges)
MDM 2.4	Develop standardized protocols for evaluation of the health plus status and trends of coral reef systems	<ul style="list-style-type: none"> I&M Specialist (Jean Kenyon) is the FWS representative on national planning effort to develop standardized protocols for core monitoring metrics (biotic and abiotic) of coral reef systems. Jean participated in meeting at NOAA HQ in June 2012 for this planning 	<ul style="list-style-type: none"> I&M Specialist will continue as FWS representative on national planning effort to develop standardized protocols for core monitoring metrics (biotic and abiotic) of coral reef systems.

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ABQ 2.1	Integrate air quality deposition and water quality monitoring	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • As part of the Water Quality Assessment Tool development, the user team is evaluating atmospheric deposition as a mechanism (exposure scenario) to impact water quality.

Appendix 2. Detailed summary of Region 2 I&M accomplishments for FY 2012 and projects to be initiated in FY 2013 by 7-Year Plan focus groups. AD – Abiotic Data, AQB – Air Quality Biomonitoring, BBI – Baseline Biotic Inventories, BIM – Bird Inventory and Monitoring, DM – Data Management, EIP – Ecological Information Planning, ESARR – Endangered Species Act Refuge Reporting, FM – Fire Monitoring, ISIM – Invasive Species Inventory and Monitoring, MM – Marine Monitoring, PM – Phenological Monitoring, RCA – Refuge Conditions Assessment, RRP – Regional Refuge Portfolio, SLRM – Sea Level Rise Modeling, SSM – Surrogate Species Monitoring, SD – System Development, VHM - Vegetation and Habitat Mapping, WRIM – Water Resources Inventory and Monitoring, WCM – Wilderness Character Monitoring, WH – Wildlife Health

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EIP 1.3	Inventory and Monitoring Plans	<ul style="list-style-type: none"> We piloted IMP process at Muleshoe NWR 	<ul style="list-style-type: none"> Initiate 8 IMPs on the following stations: Salt Plains, (Leslie Canyon or Cabeza Prieta TBD), one Station in OK (TBD), Balcones, Caddo Lake, Imperial, McFaddin, and Trinity River
EIP 1.1	IMP policy	<ul style="list-style-type: none"> Zone Biologist, Paige Schmidt, participated on team to develop Survey Protocol Handbook (SPH) I&M coordinator provided comments and feedback throughout the year on various version of the I&M Policy and SPH 	<ul style="list-style-type: none"> Schmidt will continue to serve on the SPH team
EIP 1.2 EIP 1.3	Inventory and Monitoring Plans	<ul style="list-style-type: none"> I&M coordinator assisted development of IMP process and outline 	<ul style="list-style-type: none"> I&M coordinator will continue to work on this development team
EIP 3.1	Development of protocols	<ul style="list-style-type: none"> Initiated and began development of the following protocols: Whooping crane population monitoring, Mule deer and white tailed deer population monitoring framework, black-tailed prairie dog, camera trapping for inventory of mammals and landbird surveys. Completed report entitled “Annual Report (2012): Black-tailed Prairie Dog Surveys on National Wildlife Refuges 	<ul style="list-style-type: none"> Continuation of development and completion of whooping crane protocol, development of snowy plover (breeding) survey, continuation of the camera trapping protocol, data management protocols for shared I&M with NPS collaboration, protocol development to monitoring seed production in response to management of moist- soil units. Continue the development of a draft protocol for I&M mammals on National Wildlife Refuges and National Parks. Pilot the RMBO landbird monitoring protocol to assess the applicability of this protocol on NWRs.
EIP 4.1	Collaboration Refuge Planning	<ul style="list-style-type: none"> Reviewed planning documents (CCPs, PPPs And LPPs, hunt plans, and avian safety plans) 	<ul style="list-style-type: none"> Geospatial, ecological and conservation planning support for the Muleshoe PPP and the Aransas LPP
WRIM 1.6	WRIA completion	<ul style="list-style-type: none"> Four WRIAs were completed in R2 	<ul style="list-style-type: none"> 13 WRIA will be initiated and four will be completed

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DM 1.2	ServCat full-scale implementation	<ul style="list-style-type: none"> Hired and trained 2 SCA interns Implemented Region-wide ServCat uploads Completed Aransas ServCat pilot 	<ul style="list-style-type: none"> Will have 75% of annual narrative uploaded and 50% of priority planning documents into ServCat in Region 2 in FY13 Completed Fire Plans will be uploaded into ServCat.
DM 3.1	PRIMR full-scale implementation	<ul style="list-style-type: none"> All current and proposed surveys are currently entered into PRIMR for R2 	<ul style="list-style-type: none"> Quality control of information entered will continue through FY13
ISIM 1.2	Development of an early-detection inventory and monitoring process for the Refuge System	<ul style="list-style-type: none"> R2 piloted National Park Service early detection surveys (using NPS methodology) on multiple refuges (Washita, Salt Plains, Buffalo Lake, Maxwell, Muleshoe). 15 Twelve Refuges across AZ, NM, OK and TX were surveyed in FY12. Data were analyzed and field reports compiled for these NWRs. 	<ul style="list-style-type: none"> A second sampling of a subset of these on those same NWRs in FY13. We will also provide a report on our efforts. Continue to summarize data for NWRs in a report. Work with NWRs to ensure the data are in the most usable for and that reports are utilized.
ISIM 3.1	Development of an early-detection inventory and monitoring process for the Refuge System	<ul style="list-style-type: none"> Individual station reports will be produced from the FWS/NPS collaborative efforts that will inform an early detection/rapid response framework and an adaptive management monitoring effort 	<ul style="list-style-type: none"> Surveys are planned for Kofa and Cabeza in the late winter/early spring. We are currently planning a second round of sampling at all 15a subset of refuges
BIM 1.1	Bird Team	<ul style="list-style-type: none"> Zone Biologist, Bill Johnson, participated on monthly calls for national Bird Monitoring Team 	<ul style="list-style-type: none"> Johnson will continue to serve on this team
BIM 2.1	Establish standardized, integrated and coordinated bird monitoring across the Service	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> The Region 2 waterfowl group is working on an "adaptive monitoring strategy" framework for R2 refuges with a waterfowl focus. This effort will serve as a draft guidance (written) and piloting aerial survey effort
BIM 2.1	Establish standardized, integrated and coordinated bird monitoring across the Service	<ul style="list-style-type: none"> Made initial selection of landbird transect locations for Cabeza Prieta, Kofa, Buenos Aires, Leslie Canyon, Sevilleta, San Andres and San Bernardino. 	<ul style="list-style-type: none"> Conduct landbird monitoring using the RMBO protocol on 1 Refuge
PM 1.1	Provide recommendations on how phenological information collected on refuge lands can be used to inform management.	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> We have hired an intern to visit Refuges across R2 to meet with Refuge Friends to gauge interest in involvement with collecting Nature's Notebook information on Refuges.
SSM 1.1	Support the surrogate species selection and implementation process	<ul style="list-style-type: none"> I&M Coordinator and Regional Data Manager participated as scribes in the surrogate species workshops and breakout sessions. 	<ul style="list-style-type: none"> Sesnie and Harris will act as members of the regional task force to further develop Strategic Habitat Conservation Planning (SHC) and monitoring applications for the surrogate species initiatives in R2

7-Year Plan Task	Task Description	FY 2012 Accomplishments	FY 2013 Work Plan
Region 2 I&M Priorities			
FM 1.1	In collaboration with Fire Team, generate fire fuel treatment atlas (fire atlas) for priority refuges	<ul style="list-style-type: none"> The fire atlas is nearly complete for all refuges in R2. A technical tools and a user's manual with example data has been developed to assist other regions in developing burn perimeter data and fire atlas. Created a Fire Atlas SharePoint site with draft user guide developed by SCA intern. 	<ul style="list-style-type: none"> This manual will be available in FY13. Regional Data Manager will provide SharePoint and data assistance as requested.
WRIM 4.2	Coordinated water quality and quantity effort	<ul style="list-style-type: none"> Well inventory and monitoring recommendations within Hydrologic Unit Code 12 watersheds surrounding 15 NWRs in AZ, NM, OK and TX 	<ul style="list-style-type: none"> Inventory work will continue in FY13
WRIM 4.2	Water inventories	<ul style="list-style-type: none"> Completed inventory and quantitative assessment of seeps, springs, or tinajas within NPS lands and FWS Refuges occurring in the Sonora and Chihuahua deserts through continued collaboration with Chihuahua Desert Network/National Park Service via staff and data sharing 	<ul style="list-style-type: none"> Task was completed in FY12.
RCA 1.0	Generation of refuge condition summary table	<ul style="list-style-type: none"> 3 refuge condition summary tables were generated in R2: Aransas NWR, Balcones and Muleshoe as pilot efforts 	<ul style="list-style-type: none"> Produce 2 additional Refuge condition tables
DM	Data management Regional priority	<ul style="list-style-type: none"> Establish a server for the integrative Natural Resource Program 	<ul style="list-style-type: none"> Task was completed in FY12
WCM 1.0	Wilderness Character Monitoring	<ul style="list-style-type: none"> Wilderness Fellows completed WCM on Imperial, Havasu, Kofa and Cabeza Prieta NWRsNA Initiated an air quality station inventory, data summary and monitoring recommendations effort. 	<ul style="list-style-type: none"> Continue aAir quality station inventory, data summary and monitoring recommendations
VHM 1.0	Vegetation Map	<ul style="list-style-type: none"> Vegetation Map for Buenos Aires NWR 	<ul style="list-style-type: none"> Task was completed in FY12Continue the field work, data management and vegetation map creation for Buenos Aires NWR Vegetation map for Aransas NWR Regional Data Manager will create a list from the GAC survey on status of vegetation geospatial datasets quality and availability.
VHM 2.0	Geospatial Advisory Committee	<ul style="list-style-type: none"> II&M data Manager served on the GAC Regional Data Manager assured completion of the GAC survey to assess the Geospatial capacity of Refuges including Abiotic and vegetation data availability, quality, and scale of data. Regional Data Manager on oil & gas GAC subteam 	<ul style="list-style-type: none"> I&M data manger will continue working with this team Regional Data Manager will work with NWRs GIS Coordinator to summarize survey data and create a mapbook of the results from the GAC survey for Region-wide distribution. Regional Data Manager will help GAC validate data included in geospatial database for oil & gas.

7-Year Plan Task	Task Description	FY 2012 Accomplishments	FY 2013 Work Plan
Region 2 I&M Priorities			
AD 1.0	Abiotic Data	<ul style="list-style-type: none"> Regional Data Manager and two SCA data management interns downloaded SOILS data for all but two of Region 2's refuges. Abiotic geospatial data provided to Deep Fork, Hagerman, Havasu, Little River, Maxwell, Ozark Plateau, and Tishomingo 	<ul style="list-style-type: none"> Provide user guide for soils data. Regional Data Manager will provide abiotic geospatial data to other Refuges.
BIM 3.1	Establish standardized, integrated and coordinated bird monitoring across the Service	<ul style="list-style-type: none"> R2 refuges received permission to upload information to Patuxent's Landbird Database 	<ul style="list-style-type: none"> Regional and Zone Data Managers will assist Refuges with Patuxent Landbird Database as requested. Task was completed in FY12NA Establish waterfowl surveys in concert with habitat monitoring to inform waterfowl management in TX and OK.
AM 1.0	Adaptive Management Regional project	<ul style="list-style-type: none"> Initiated project to understand the relationships between whooping crane population dynamics and environmental conditions 	<ul style="list-style-type: none"> Understanding the relationships between whooping crane population dynamics and environmental conditions, submit paper for publication
AM 1.0	Adaptive Management Regional Project	<ul style="list-style-type: none"> Initiated Bosque del Apache NWR corn depredation project 	<ul style="list-style-type: none"> Analyze Bosque del Apache NWR corn depredation data
SLR 1.0	Sea Level Rise, information sharing	<ul style="list-style-type: none"> Obtained SLAMM input and output layers used by Warren Pinnacle Consulting Co for McFaddin, Galveston Bay, Laguna Atascosa, and Aransas NWR Requested McFaddin NWI data be updated in FY13 	<ul style="list-style-type: none"> Generate and QC bare earth models for the Texas Gulf Coast in support of SLAMM runs Rerun SLAMM model at Aransas NWR with updated digital elevation model and NWI data Update NWI data at Laguna Atascosa NWR
SLR 2.0	Sea Level Rise Baseline information	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> Initiate study on Redhead ducks at Laguna Atascosa NWR to determine habitat and space use in support of Gulf Coast conservation planning
SLR 3.0	Sea Level Rise Modeling	<ul style="list-style-type: none"> Initiated land cover change and vulnerability analysis project 	<ul style="list-style-type: none"> Continue Gulf Coast land cover change and vulnerability analysis project ongoing
BBI 2.0	Baseline Inventory using camera-trapping technology	<ul style="list-style-type: none"> Initiated project at Bosque del Apache NWR designed to evaluate the utility of camera-trapping to estimate density of unmarked animals. Camera trapping at 7 locations throughout Chihuahua and Sonora desert to monitor deer and desert bighorn sheep use of artificial drinkers. 	<ul style="list-style-type: none"> Ongoing inventory project at Bosque del Apache NWR designed to evaluate the utility of camera-trapping to estimate density of unmarked animals. Analyze data describing activity and seasonality of artificial drinker use for deer and desert bighorn sheep.
DM 4.1	Data management Technical Support	<ul style="list-style-type: none"> Provided technical support to Zone Biologists and Refuges for PRIMR 	<ul style="list-style-type: none"> Region 2 data managers will provide technical support to end users. Region 2 data managers will provide technical support to end users
DM 4.2	Data Management Quality Control	<ul style="list-style-type: none"> Regional Data Manager provided NRPC with report of desktop PRIMR issues Regional Data Manager merged multiple desktop PRIMR updates from Refuges as needed 	<ul style="list-style-type: none"> Periodic quality control will be performed by Regional and Zone Data Manager

7-Year Plan Task	Task Description	FY 2012 Accomplishments	FY 2013 Work Plan
Region 2 I&M Priorities			
DM 4.3	Data Management reporting	<ul style="list-style-type: none"> Regional Data Manager created a PRIMR SharePoint site that contains customized reports and maps from the desktop PRIMR. Regional Data Manager created customized reports: <ul style="list-style-type: none"> Ranked list 1-10 by Zone Biologist Surveys by Refuge Survey Types Maps by survey type Report of Surveys with Citations/Protocols T&E sp. SurveysNA 	<ul style="list-style-type: none"> Customized reports will be generated by Regional Data Manager in the centralized PRIMR environment. Customized reports will be generated by R2 Data manger
DM 2.0 DM 4.0 DM 6.0 RRP 1.0	Data Management Technical Support for ServCat, PRIMR, ESA Database Regional Refuge Portfolio	<ul style="list-style-type: none"> Regional Data Manager provided custom R2 report for ES. 	<ul style="list-style-type: none"> Regional Data Manager will provide training sessions on centralized PRIMR, ServCat, and ESA Database as applied to using as a Regional Refuge Portfolio
DM ISIM 2.1	Data Management	<ul style="list-style-type: none"> Developed an Information Management System for Exotic/Invasive Early Detection protocol including: 1) developed field data recording application 2) automated QA/QC 3) SQL based geodatabase. Also established the framework for the remaining shared protocols Developed SharePoint site for EDRR Developed SharePoint Site for ISST 	<ul style="list-style-type: none"> Continue development of an information management systems for the remaining shared protocols between NPS and FWS. Task was completed in FY12 Regional Data Manager will work with SODN Data Manager to share data from EDRR. Review feasibility of BLM NSIMS for invasives mapping and as a management tool. Continue to support R2 ISST with GIS/GPS training. Create SOP for reviewing ISST GPS data for topology errors. Develop system for whooping crane survey input and archival. Use of geospatial PDF for FWS staff. Establishing 90 TB server in R2.
AQB 1.0	Air Quality Biomonitoring	<ul style="list-style-type: none"> Initiated work on the inventory of climate stations, groundwater wells and air quality stations in and around 15 refuges in AZ, NM, TX and OK. 	<ul style="list-style-type: none"> Continue work on Inventory of climate stations, groundwater wells and air quality stations and around 15 refuges in AZ, NM, TX and OK
BBI 2.0 PM 1.0	Baseline inventories Phenological monitoring	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> Initiate native pollinator inventory with phenology component on Imperial, Cibola, Muleshoe, Buffalo Lake and Bill Williams River NWRs. (1-yr pilot project). Using SCA crew to identify phenology needs across R2 Refuges

7-Year Plan Task	Task Description	FY 2012 Accomplishments	FY 2013 Work Plan
Region 2 I&M Priorities			
BBI 2.0 PM 1.0	Baseline inventories Phenological monitoring	<ul style="list-style-type: none"> Started the Flora Project and completed a draft field guidebaseline flora inventory and draft for BANWR. Began development of electron applications. Creation of the draft required identification of plants requiring treatments, treatment of identified plants, and development of FWS graphical approach and guide templates. Also, began developed of FWS online database for R2 FWS flora Project initiated at Cibola NWR 	<ul style="list-style-type: none"> Complete 1 additional baseline inventory and draft flora field guide for a refuge in the Chihuahuan or Sonoran Deserts. Continue development of the electron applications. Intitiate project at Muleshoe and Buffalo Lake NWR Analyzing chub fish inventory data in SW AZ to evaluate population recovery.

Appendix 3. Detailed summary table of Region 3 I&M accomplishments for FY 2012 and projects to be initiated in FY 2013 by I&M 7-Year Plan focus groups. AD – Abiotic Data, AQB – Air Quality Biomonitoring, BBI – Baseline Biotic Inventories, BIM – Bird Inventory and Monitoring, DM – Data Management, EIP – Ecological Information Planning, ESARR – Endangered Species Act Refuge Reporting, FM – Fire Monitoring, ISIM – Invasive Species Inventory and Monitoring, MM – Marine Monitoring, PM – Phenological Monitoring, RCA – Refuge Conditions Assessment, RRP – Regional Refuge Portfolio, SLRM – Sea Level Rise Modeling, SSM – Surrogate Species Monitoring, SD – System Development, VHM - Vegetation and Habitat Mapping, WRIM – Water Resources Inventory and Monitoring, WCM – Wilderness Character Monitoring, WH – Wildlife Health

7-Year Plan Task	Task Description	FY 2012 Accomplishments	FY13 Work Plan
Region 3 I&M Priorities			
EIP 1.2	Ecological Information Planning: HMP support	<ul style="list-style-type: none"> Supported HMP development via contracts at 8 stations: Detroit River, Illinois River, Minnesota Valley, Rydell, Upper Mississippi River, Swan Lake, Rice Lake NWRs, Windom WMD 	<ul style="list-style-type: none"> We will initiate 14 new and finalize 15 on-going HMPs
EIP 1.3	Inventory and Monitoring Plans	<ul style="list-style-type: none"> Started IMP's at 2 stations: Clarence Cannon, Muscatatuck NWRs 	<ul style="list-style-type: none"> Initiate and/or complete 5 IMPs on the following stations: Two Rivers, Mingo, Clarence Cannon, Muscatatuck NWRs, and Morris WMD
WRIM 1.6	WRIAs	<ul style="list-style-type: none"> Completed 4 stations: Shiawassee, Clarence Cannon, Great River, Iowa River Corridor portion of Port Louisa. 6 stations ongoing: Cypress Creek, Horicon, Ottawa, Boyer Chute, DeSoto, rest of Port Louisa NWR 	<ul style="list-style-type: none"> Start 2 stations: Rydell, Glacial Ridge NWRs. Complete 6 stations: Cypress Creek, Horicon, Ottawa, Boyer Chute, DeSoto, Port Louisa NWRs.
WRIM 2.0	HGMs	<ul style="list-style-type: none"> Completed 2 stations: Cypress Creek, Hamden Slough NWRs. 7 stations ongoing: Great River, Boyer Chute, Squaw Creek, Big Muddy, DeSoto, Clarence Cannon, Shiawassee NWRs <hr/> <ul style="list-style-type: none"> Cooperators: US Army Corps of Engineers, PPP LCC, and ETP-BR LCC 	<ul style="list-style-type: none"> Complete 3 stations: Great River, Clarence Cannon, Shiawassee NWRs
WRIM 4.6	Water Monitoring`	<ul style="list-style-type: none"> Initiated monitoring at 2 new stations: Shiawassee and Horicon NWRs. Water monitoring continued at 11 stations: Ottawa, Sherburne, Glacial Ridge, Agassiz, Squaw Creek, Mingo, Detroit River, Trempealeau, Swan Lake, Port Louisa NWRs, and Morris WMD. Report summarizing long-term water monitoring at Neal Smith NWR ongoing. <hr/> <ul style="list-style-type: none"> Cooperators: USGS, states, universities 	<ul style="list-style-type: none"> Continue water monitoring at 13 stations: Ottawa, Sherburne, Glacial Ridge, Agassiz, Squaw Creek, Mingo, Horicon, Shiawassee, Detroit River, Trempealeau, Swan Lake, Port Louisa NWRs, and Morris WMD. Complete report summarizing long-term water monitoring at Neal Smith NWR.

7-Year Plan Task	Task Description	FY 2012 Accomplishments	FY13 Work Plan
Region 3 I&M Priorities			
BBI 2.1	Rapid Ecological Assessment for Forests	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Great Lakes Network Project – complete protocol for rapid ecological assessment of forest condition.
ISIM 1.0	Invasive Species Pilots	<ul style="list-style-type: none"> • Completed pilot versions of protocols, databases, and models. • Continue Invasives pilot at 6 stations: Mingo, Big Oaks, Cypress Creek, Muscatatuck, Patoka River, Crab Orchard NWRs. <hr/> Cooperators: Chicago Botanical Society	<ul style="list-style-type: none"> • Approve protocols, finalize databases and models. • Continue Invasives pilot at 6 stations: Mingo, Big Oaks, Cypress Creek, Muscatatuck, Patoka River, Crab Orchard NWRs.
WCM 1.1	Wilderness	<ul style="list-style-type: none"> • Initiated Wilderness Character Monitorings at for 6 refuges: Huron Islands, Michigan Islands, Mingo, Wisconsin Island, West Sister Island,, Crab Orchard. 	<ul style="list-style-type: none"> • Start and complete 1 station: Tamarac NWR. • Complete Michigan Islands, Huron Island, West Sister Island, Wisconsin Islands, Crab Orchard, and Mingo WCM reports. • This completes initial monitoring at all designated Wilderness Areas in R3
SD 1.0	ServCat	<ul style="list-style-type: none"> • ServCat Pilot station: Neal Smith NWR • Refuge Annual Narratives entered into SerCat 	<ul style="list-style-type: none"> • Test-drive the ServCat database in R3. • Support training for field stations. • Develop plan for capturing information from field stations into ServCat.
AM 1.2	Adaptive Management: Wetland Restoration Adaptive Management Project.	<ul style="list-style-type: none"> • Updated database and model. • 5 stations in R3: MN Private Lands Office, Fergus Falls, Big Stone NWRs, Morris, Detroit Lakes WMDs. <hr/> Cooperators: MN DNR and NRCS, USGS, Chicago Botanical Society	<ul style="list-style-type: none"> • Connect database to model on Sharepoint. • Issue management recommendations to stations on time. • Open project to new cooperators. • 2 stations in R3: Morris WMD, Glacial Ridge NWR • Cooperative project with MN DNR & TNC
AM 1.2	Adaptive Management: Grassland Monitoring Team	<ul style="list-style-type: none"> • Updating database and model • 2 stations in R3: Morris WMD, Glacial Ridge NWR <hr/> Cooperators: MN DNR, The Nature Conservancy, USGS, Chicago Botanical Society	<ul style="list-style-type: none"> • Connect database to model on Sharepoint. • Issue management recommendations to stations on time. • Open project to new cooperators. • 2 stations in R3: Morris WMD, Glacial Ridge NWR • Cooperative project with MN DNR & TNC.
AM 1.2	Adaptive Management: Establishing New (Reconstructed) Prairies	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Start project focused on establishing new (reconstructed) prairies; hold workshop. • Identify cooperators: refuge stations and partners.
AM 1.2	Adaptive Management: Savannas	<ul style="list-style-type: none"> • Continued project to develop inventory, monitoring, and rapid ecological assessment tools for savanna ecosystems. 	<ul style="list-style-type: none"> • Complete project to develop inventory and monitoring tools for savanna ecosystems. • Handbook for monitoring

7-Year Plan Task	Task Description	FY 2012 Accomplishments	FY13 Work Plan
Region 3 I&M Priorities			
AM 1.2	Adaptive Management: Canada Thistle Project	<ul style="list-style-type: none"> Completed project focused on assessing threat of invasive Canada thistle on prairies. <hr/> Cooperator: USGS	<ul style="list-style-type: none"> Publish one or more journal papers from this project.
RRP 1.1	Regional Refuge Portfolio: Elevation Mapping	<ul style="list-style-type: none"> Contracted with USGS to do LIDAR interpretation for Shiawassee NWR – Completed. 	<ul style="list-style-type: none"> Task was completed in FY12
BIM 1.2	Bird Inventory & Monitoring: Special Project	<ul style="list-style-type: none"> Contracted with IL Natural History Survey to monitor productivity of Prothonotary Warblers at Cypress Creek NWR - Completed. 	<ul style="list-style-type: none"> Task was completed in FY12
BBI 1.3	Baseline Biotic Inventories: Birds	<ul style="list-style-type: none"> Contracted with The Nature Conservancy to conduct a bird inventory on NWRs and other conservation lands. Refuge stations to be identified. <hr/> Cooperators: Migratory Birds, The Nature Conservancy	<ul style="list-style-type: none"> Continue inventories of birds on refuge stations.

Appendix 4. Detailed summary table of Region 4 I&M accomplishments for FY 2012 and projects to be initiated in FY 2013 by I&M 7-Year Plan focus groups. AD – Abiotic Data, AQB – Air Quality Biomonitoring, BBI – Baseline Biotic Inventories, BIM – Bird Inventory and Monitoring, DM – Data Management, EIP – Ecological Information Planning, ESARR – Endangered Species Act Refuge Reporting, FM – Fire Monitoring, ISIM – Invasive Species Inventory and Monitoring, MM – Marine Monitoring, PM – Phenological Monitoring, RCA – Refuge Conditions Assessment, RRP – Regional Refuge Portfolio, SLRM – Sea Level Rise Modeling, SSM – Surrogate Species Monitoring, SD – System Development, VHM - Vegetation and Habitat Mapping, WRIM – Water Resources Inventory and Monitoring, WCM – Wilderness Character Monitoring, WH – Wildlife Health

7-Year Plan Task	Task Description	FY 2012 Accomplishments	FY 2013 Work Plan
Region 4 I&M Priorities			
EIP 1.0	Nationally, every Refuge will have begun the development of IMPs by the end of FY15.		<ul style="list-style-type: none"> • Initiate see EIP 1.4
EIP 1.1	During FY13, the I&M Team will help facilitate approval of the I&M Policy.	<ul style="list-style-type: none"> • Provided comments as requested. 	<ul style="list-style-type: none"> • Provide comment, input, and interpretation as needed.
EIP 1.2	Beginning in FY13, the I&M Team will work with regional and refuge staff to help Refuges prioritize resource management objectives and or conduct needs assessments in advance of developing an IMP.		<ul style="list-style-type: none"> • All regions will continue to assist refuges with prioritizing resource management objectives in advance of creating an IMP
EIP 1.3	By the end of December 2013, the I&M Team will have piloted the IMP process and format on at least two refuges to ensure the process in the I&M Policy is sound.		<ul style="list-style-type: none"> • Provide comment, input, and assistance as requested.
EIP 1.4	Initiation of IMPs will proceed as follows: 10% of stations will have initiated production of an IMP by the end of FY13, 40% by the end of FY14, and 100% of the stations will have initiated the IMP process by the end of FY15.		<ul style="list-style-type: none"> • Initiate IMP development on at least 4 refuges within Region 4 (ideally one refuge per I&M ecologist, pilot within the region to provide information on how to do IMPs for all R4 NWRs).
EIP 3.1	By the end of FY13, the I&M Survey Protocol team will finalize the Survey Protocol Handbook and provide several examples of protocols from which to work.		<ul style="list-style-type: none"> • Provide, comment, input and assistance as requested.
EIP 3.2	By the end of FY13, the landbird and marshbird protocol framework will be completed and available for site-specific application.		<ul style="list-style-type: none"> • Participate on the Bird Team working groups as needed in order to complete the marshbird and landbird protocols to be posted in ServCat and available for site-specific application.

7-Year Plan Task	Task Description	FY 2012 Accomplishments	FY 2013 Work Plan
Region 4 I&M Priorities			
EIP 4.1	The I&M and Planning Chiefs will hold a joint meeting in December 2012 to identify at least one area where monitoring data could be used to better inform the next round of CCPs.	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Attend the I&M-Planning joint meeting and identify at least one area where could better inform the next round of CCPs.
EIP R4	Review and provide comment to refuge HMPs	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Regional I&M staff will provide review and comment for draft HMP in coordination with R4 Planning Division. Review will focus on Section IV, Habitat Goals and Objectives, with emphasis on S.M.A.R.T. objectives and appropriate monitoring elements.
WRIM 1.1	By the end of FY13, the Water Team will develop guidance document for consistent implementation of WRIA application.	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Participate in National Water Team to develop a guidance document for consistent WRIA implementation.
WRIM 1.2	By the end of FY13, the Water Team in collaboration with refuge staff, will enter data into the WRIA application for at least two NWRs per region, including relevant water resource geospatial information.	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Enter data into the WRIA for refuges with completed or in-progress WRIAs.
WRIM 1.6	Nationally, complete 12 new WRIAs in FY13, increase number completed to 32 in FYs17-19.	<ul style="list-style-type: none"> • CAPE ROMAIN NWR – kickoff meeting for WRIA process was held March 6, 2012. Sharepoint site created and maintained for data dissemination. Initial WRIA data inventory draft summary for Cape Romain NWR WRIA including figures was provided to Regional Hydrologist for analysis June 2012. Analysis on-going and expected in early 2013. • Partners: Refuge staff, I&M, Regional Office, Ecological Services, Ecological Contaminants, State Agencies, USGS, NGOs, Contractors • CAHABA RIVER NWR – kickoff meeting for WRIA process held August 14, 2012. Sharepoint site created and maintained for data dissemination. Monthly conference calls. Inventory and analysis on-going, with draft expected in early 2013. • Partners: Refuge staff, I&M, Regional Office, Ecological Services, Ecological Contaminants, several State Agencies, municipalities, several NGOs, Contractors 	<ul style="list-style-type: none"> • Complete WRIAs initiated in FY 2012(CAHABA RIVER NWR and CAPE ROMAIN) • Initiate additional WRIAs as funding allows.

7-Year Plan Task	Task Description	FY 2012 Accomplishments	FY 2013 Work Plan
Region 4 I&M Priorities			
WRIM 2.1	Beginning in FY13, the Water Resources and I&M Teams will identify those refuges with known or suspected issues with water quality, water quantity (including water rights), infrastructure issues with wetland management, and climate change concerns that would benefit from an HGM study. By the end of FY13, these teams will develop a schedule for implementation that ensures results can be used to inform CCP/HMP development.	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Serve on national teams. Regionally identify criteria and prioritize refuges and fish hatcheries HGM needs.
WRIM R4	Regionally, complete baseline hydrogeomorphic (HGM) analysis at selected stations	<ul style="list-style-type: none"> • Cape Romain HGM started on March 6, 2012 and expected to be completed by early 2014. Work accomplished with multiple partners. Frequent progress reporting via conference calls and WebEx to maintain communication and move project forward. • White River HGM continue to make progress towards completion. • Data mining conducted at Cape Romain as part of HGM process in May 2012. • Partners: Refuge staff, I&M, Regional Office, Ecological Services, Ecological Contaminants, USGS, NGOs, Contractors. 	<ul style="list-style-type: none"> • Completed HGMs initiated in FY12.
WRIM 3.1	Beginning in FY13, I&M representative(s) and Water Resources Coordinator will work collaboratively with the Division of Environmental Quality to enhance the current CAP database to support communication with the WRIA application, which will promote CAP data integration into the WRIA process. This process is targeted for completion by the end of FY15.	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Work as part of national team to initiate work to coordinate and collaborate CAP with WRIA.
WRIM R4	Regionally communicate CAP information to various audiences.	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Work with ES to develop and disseminate a CAP fact sheet.
WRIM 4.1	By the end of FY13, the Water Team will identify national water monitoring objectives.	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Participate on the National Water Team to identify national water monitoring objectives

7-Year Plan Task	Task Description	FY 2012 Accomplishments	FY 2013 Work Plan
Region 4 I&M Priorities			
WRIM R4	Identify regional water monitoring objectives.	• NA	• Work with internal and external partners to identify inventory and monitoring objectives (objectives matrix)
WRIM 4.5	Beginning in FY13, the Water Team will identify national-level protocols for water quantity and quality monitoring. The target completion date for this task is by the end of FY13.	• NA	• Participate on National Water Team to identify national-level water monitoring protocols for implementation.
SD 1.1	By the end of FY13, NRPC I&M staff make the ServCat database module available to internal users.	• NA	• Formulate a Regional plan of action identifying regional ServCat priorities and implementation strategy.
SD 2.2	Beginning in FY13, NRPC I&M staff will deliver at least two ServCat training sessions annually.	• NA	• Participate in ServCat training sessions as needed.
SD 4.1	By the end of FY13, NRPC I&M staff make the PRIMR database module available to internal users.	• NA	• Migrate current regional PRIMR data to centralized PRIMR.
SD 5.2	Beginning in FY13, NRPC I&M staff deliver at least two PRIMR training sessions annually.	• NA	• Participate in PRIMR training sessions as needed.
DM 1.2	Beginning in FY13, 20% of the priority legacy documents identified in DM 1.1 will be entered into ServCat annually; task will be completed by the end of FY17.	• Provided national support in the effort to have all refuge annual narratives from 1970 saved digitally in the USFWS Service Catalog (ServCat). A repository for compiling, organizing, and making accessible recent and historic information that is important to refuge resource management. The information entered in the database is discoverable and retrievable using text and geospatial search tools. ServCat will complement the NCTC Conservation Library and will be an important collaboration tool for the Service and its partners.	• Complete regional annual narrative location spread sheet and work towards finding and uploading annual narratives. Continue to provide support to National Office for ServCat implementation.
DM R4	Document survey methods (old protocols) for eventual entry into ServCat with data where documentation is limited.	• NA	Formulate a Regional plan of action identifying regional ServCat priorities and implementation strategy. Initiate upon roll-out of centralized ServCat (SD 1.1).
DM 1.3	By end of FY15, Regional I&M staff will be trained in creating ServCat records to assist with keeping ServCat records current. This task will be coordinated with Systems Development Objective 2.0.	• NA	• Identify priority refuge datasets, review documentation on where and how data was collected, and develop survey narratives if needed.

7-Year Plan Task	Task Description	FY 2012 Accomplishments	FY 2013 Work Plan
Region 4 I&M Priorities			
DM 3.2	By the end of FY14, 100% of stations will describe their current and proposed I&M survey activities in PRIMR and keep this information updated annually.	<ul style="list-style-type: none"> Data entered into the PRIMR database for SALCC and GCPO LCC geographies where biologists are located. Reports by refuge being generated, proofed and distributed as each refuge completed entering all information. 	<ul style="list-style-type: none"> Complete all regional PRIMR visits, validate information and generate reports for refuges and partners.
DM 4.2	Beginning in FY13, NRPC I&M staff and Data Managers generate customized reports as needed.	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> Conduct qa/qc of R4 PRIMR data.
DM R4	Conduct a Regional PRIMR crosswalk to identify protocol, database, analysis needs.	<ul style="list-style-type: none"> Developed PRIMR tool that links PRIMR database to a spatially explicit tool that enables a visual representation of where surveys are being conducted across the region and by whom. 	<ul style="list-style-type: none"> Develop and maintain a protocol-partner library. Identify and address initial questions raised from crosswalk.
ISIM 1.1	By the end of FY13, the Invasive Species – I&M working group will have undertaken the necessary investigative steps and completed a basic framework of the plan.	<ul style="list-style-type: none"> Jeff Herrod represented Region 4 in working group. 	<ul style="list-style-type: none"> Continue to participate in the IM working group to design a basic framework for an early-detection inventory and monitoring process for invasive plants.
ISIM 2.1	Use the I&M Invasive Species inventory pilot results, or other invasive plant inventory case studies, existing inventory protocols and published literature to develop a guide to conducting invasive plant inventories on refuge lands by end of FY 14. The guide will offer a framework and tools to help refuge managers prioritize invasive plant inventory and management efforts.	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> Provide comment, input, and representation as requested to evaluate the results of the pilot efforts that will include an assessment of the prioritization process and predictive modeling results.

7-Year Plan Task	Task Description	FY 2012 Accomplishments	FY 2013 Work Plan
Region 4 I&M Priorities			
ISIM R4	Develop pilot projects focused on mapping and monitoring invasive plants and/or animals in at least two regions, with a long term vision of supporting an integrated landscape approach to the management of invasive species across the refuge system.	<ul style="list-style-type: none"> • Through FY 2012RFP, I&M funded fish community assessment work on Savannah NWR that including standard protocol development using multiple techniques to detect aquatic invasive species. Components of this work include early detection and rapid response, new technologies, and both internal and external education about AIS. Significant on-site technical and logistic support was provided. In August 2012, sampling efforts surveyed 22 km river miles along Little Back River in Savannah NWR, and approximately 12 km within impoundments on SAV. Based on preliminary results, 20 native species and one naturalized species (common carp) were detected. • Work conducted at Savannah NWR builds on work funded through I&M FY11 RFP conducted at A.R.M. Loxahatchee NWR, including standard protocol development, early detection and rapid response techniques for AIS, and development of eDNA markers for AIS species of concern and emerging threats to aquatic systems. • Partners include: Regional Office, I&M, Refuges, Fisheries, National Fish Hatcheries – Warm Springs & Welaka NFHs. 	<ul style="list-style-type: none"> • Complete edna project, communicate results and make methods available.
ISIM 3.1	ISIM 3.1 By end of FY13, the working group will produce an interim report on the results to date of the pilot project that includes a preliminary assessment of the prioritization process and predictive modelling, in addition to a recommendation of how the pilot data can be used by a refuge to inform an adaptive management monitoring effort.	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Participate to develop guidance for conducting invasive plant inventories based on the pilot results.
ESA 2.1	ESA 2.1 By the end of FY13, refuges will report which ESA listed species are currently being monitored.	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • All refuges will report which listed ESA species are currently being monitored.

7-Year Plan Task	Task Description	FY 2012 Accomplishments	FY 2013 Work Plan
Region 4 I&M Priorities			
VHM 1.1	By the end of FY13, develop regional and national summaries of vegetation resources on Refuge lands using existing national datasets.	<ul style="list-style-type: none"> • Participated in National Vegetation Mapping team planning calls (Fall-Winter 2011/2012) • Reviewed vegetation mapping procedures with refuge staff from Pinckney Island, Harris Neck, and Okefenokee NWR (Winter-Spring 2012) • Attended work detail on Sumter NF (South Carolina) to discuss vegetation mapping products with the Carolina Vegetation Survey 	<ul style="list-style-type: none"> • Participate on national team to develop regional and national summaries of vegetation maps and data currently available on refuge lands and where gaps exist. • Regionally identify Vegetation Map needs for refuges (including questionnaire of existing status) • Link refuge veg map data to National Classification Standard (e.g., Ecological Systems)
VHM 1.2	By the end of FY13, ensure the datasets and summary reports are accessible to others.	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Where appropriate, create ServCat records so the data is assessable and discoverable. •
VHM 2.0	By the end of FY15, in collaboration with the Geospatial Advisory Committee, the I&M Team will develop guidance for contracting, acquiring, or developing vegetative cover datasets.	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • For VHM 2.0 participate on national team to develop guidance for acquiring and/or developing vegetative cover datasets.
VHM R4	Compile Carolina Vegetation Survey Metadata	<ul style="list-style-type: none"> • Compiled dataset from Carolina Vegetation Survey plots established on South Atlantic LCC NWR's. As of August 2012, there are a total of 245 high-quality, geospatially reference, and monumented vegetation-environment plots occurring across 17 refuges within the region. These plots represent 102 distinct National Vegetation Classification Standard community associations; associations represented the most include 1) longleaf pine-bluejack oak / southern wiregrass woodlands, 2) cypress-tupelo semipermanently flooded brownwater swamps, 3) maritime slash pine upland flatwoods, 4) Mid-Atlantic high salt marsh, 5) South Atlantic coastal plain longleaf flatwoods, 6) Southeastern Coastal Plain green ash-elm bottomland forests, and 7) Southern Atlantic Coast salt marsh. A total of 8021 taxon incidences and a total of 1417 taxon concepts are recorded. This species list has not yet been queried with rare species records from state or federal records. 	<ul style="list-style-type: none"> • Develop and distribute a factsheet detailing information from Carolina Vegetation Survey plots located on South Atlantic LCC refuges.
AD 1.1	By the end of FY13, NRPC I&M staff will provide instructions to I&M Staff, field stations and planners how to acquire these data independently.	<ul style="list-style-type: none"> • Surveyed all refuges in the southeastern Region to determine level of GIS/GPS skills, and determine status of their GIS data to facilitate next steps of roll-out. 	<ul style="list-style-type: none"> • Provide instruction to field stations on how to acquire the data.

7-Year Plan Task	Task Description	FY 2012 Accomplishments	FY 2013 Work Plan
Region 4 I&M Priorities			
AD 1.2	By the end of FY13, NRPC I&M staff develop process to deliver these data to refuge field stations that do not have the capacity to acquire independently.	<ul style="list-style-type: none"> • Represented Region on the GAC and assisted in designing a brief survey to provide a high level understanding of the data resources and geospatial capabilities available to support Refuge System programmatic requirements. Provide assistance to refuges in their response to this DTS request. 	<ul style="list-style-type: none"> • Provide, comment, input and assistance as requested to develop a process to deliver data to field stations that lack the capacity to acquire the data independently.
AD 2.1	By end FY13, identify and prioritize additional abiotic datasets not identified in WH8.1, that are crucial for informing management decisions and supporting inventory and monitoring activities.	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Provide, comment, input and assistance as requested to identify, prioritize and estimate costs for obtaining additional abiotic data not identified in WH8.1.
AD 2.2	By the end of FY13, estimate costs for acquiring high priority core abiotic data layers not currently available.	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Provide, comment, input and assistance as requested.
AD 3.1	By the end of FY13, develop geospatial data standards for at least at least two enterprise abiotic datasets.	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Provide, comment, input and assistance as requested to develop geospatial data standards for the datasets.
BIM 1.0	In collaboration with Migratory Birds, develop and initiate a strategy to integrate, standardize (where appropriate), and coordinate bird monitoring across the nation by the end of FY19.	<ul style="list-style-type: none"> • Region 4 I&M Coordinator co-lead I&M Bird Team, lead and participate in monthly conference calls. Goal of Team is to take a leadership role, in partnership with FWS migratory birds, in supporting coordinated bird monitoring on national wildlife refuges across the nation. The Team established a number of working groups in FY 2012 focused on bird groups and bird monitoring tools to address a number of questions and action items. 	<ul style="list-style-type: none"> • Continue to participate on national bird team.
BIM 1.2	By the end of FY14, the Bird Team will use PRIMR to identify avian inventory and monitoring needs common to multiple refuge stations or regions and identify potential gaps in inventories or monitoring.	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • For Region 4, address task in regional PRIMR crosswalk.

7-Year Plan Task	Task Description	FY 2012 Accomplishments	FY 2013 Work Plan
Region 4 I&M Priorities			
BIM 2.1	By the end of FY13, the Bird Team will identify, prioritize, and develop an implementation strategy to produce the national and/or regional protocol frameworks needed to inventory or monitor forest, grassland, marshbird, waterbirds, shrubland birds, and landbirds on refuges.	• NA	• Continue to serve on Bird Team and associated working groups to provide, comment, input and assistance to complete the marshbird and landbird protocol frameworks.
BIM 2.2	By the end of FY13, the Marshbird Steering Committee, a sub-team of the Bird Team, will convert the National Marshbird Protocol into a format that meets National I&M policy. This task requires coordination with the Ecological Information Planning Objective 3.0.	• NA	• Continue to serve on Bird Team and associated working groups to provide, comment, input and assistance to identify, prioritize, and develop an implementation strategy to produce protocol frameworks for other bird communities.
BIM 3.1	By the end of FY13, the Bird Team will work with the NRPC I&M staff to develop a process to facilitate import of scrubbed landbird and marshbird data, currently held by the USGS Patuxent Wildlife Research Center, into AKN.	• NA	• Continue to serve on Bird Team and associated working groups to provide, comment, input and assistance to develop a process to facilitate import of scrubbed landbird and marshbird data into AKN.
BIM 3.2	By the end of FY14, the Bird Team will work with the Integrated Waterbird Management and Monitoring project (IWMM) to develop a process for managing and sharing IWMM data with AKN.	• NA	• Continue to serve on Bird Team and associated working groups to provide, comment, input and assistance to develop a process for managing and sharing IWMM data with AKN.
BBi 1.1	By the end of FY13, the Inventories Team will identify, evaluate and prioritize the sources of existing species observation data that can be used to pre-populate a data information system for species observation.	• NA	• Continue to serve on Inventory team to identify, evaluate and prioritize the sources of existing species observation data.

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Region 4 I&M Priorities			
BBI 1.2	By the end of FY13, the Inventories Team will identify a process for populating the data information system and identify what steps can be completed while the data information system is being developed. This task requires coordination with System Development Objective 7.0 and Data Management Objective 5.0.	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Continue to serve on Inventory team to identify a process for populating the species data information system.
BBI 1.3	Using the species observation data from BBI 1.1, create a bird list from existing data for each station in preparation for validation. The Species Inventory team in collaboration with the Bird Team will complete this task by end of FY13.	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Continue to serve on Inventory team to create a bird list from the sources previously identified in preparation for input and validation.
PM 1.1	By December 31, 2012 I&M will have analysed the phenologic survey results to determine the following: what phenologic data is being collected, what percentage of phenologic data is being collected by citizens, has the data been analyzed, where is the data being stored, and has it been used to guide management activities	<ul style="list-style-type: none"> • Answered refuge questions in regards to request (DCN: 052322); information to integrating phenology monitoring efforts with other bureaus and the broader scientific community to inform our understanding of climate related shifts. Results from the questionnaire will allow the national I&M Team to integrate observations and data management for greater efficiencies. 	<ul style="list-style-type: none"> • Assist if needed to analyze and report the data collected from the phenological survey.
PM 1.2	By the end of FY13, fully implement the FWS landing page on the NPN website to serve as a communication tool providing I&M specific information for refuge staff and providing an avenue to integrate "citizen scientists" with refuge monitoring.	<ul style="list-style-type: none"> • Southeast Regional representative served on National Phenology/Pollinator sub-team and developed a USFWS Factsheet on Nature's Notebook, a program through our partner, the National Phenology Network on phenological monitoring and tested these methods at Pea Island NWR. 	<ul style="list-style-type: none"> • Assist if needed to fully implement the FWS landing page on the NPN website.
PM 1.3	Through FY13, work with refuges to develop data management tools (input and out) that meet refuge needs for data entry, export, and summary statistics. Note – this will be an ongoing task that will require regional and national attention.	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Provide comment, input, and interpretation as needed to develop relevant data management tools to assist refuge staff with data entry, export, and production of summary statistics for reports.

7-Year Plan Task	Task Description	FY 2012 Accomplishments	FY 2013 Work Plan
Region 4 I&M Priorities			
PM R4	2012 Pollinator Challenge, coordinate pollinator monitoring activities throughout region	<ul style="list-style-type: none"> Served as Regional Pollinator Coordinator on National Pollinator Team Participated in National Pollinator Week activities (wrote National Blogs and collaborated with RO and WO for media releases). Coordinated Pollinator Challenge activities: NWR, ES offices, National Hatcheries, and RO are all participating and have reported efforts. Performed initial butterfly inventories both on Alligator River NWR and on partner land on nearby Kitty Hawk Woods (NERRS). Developed 5 FWS Factsheets on Pollinator Challenge and citizen science monitoring programs. Created pollinator gardens on 2 Service sites, collaborated with volunteers and Friends Group for fundraising and media events. Collaborated regularly with NC Aquarium horticulturist for native plants for pollinator gardens on refuges/partner lands. 	<ul style="list-style-type: none">
AM 1.1	By the end of FY13, the I&M Team will define different levels of AM as practiced in the NWRS and identify the fundamental technical skills, tools and resources needed to support monitoring under an adaptive management framework across the NWRS.	<ul style="list-style-type: none"> Pilot investigation within Southeast Region GCPO geography via AM question in Needs Assessment with answer options reflecting broad levels of AM. 	<ul style="list-style-type: none"> List and define the different levels of AM as practiced in the NWRS; includes identifying necessary skills, tools and resources needed. (Note: we need one region to take the lead). Region 4 provide comment, input and assistance as needed.
WCM 1.1	By the end of FY14, NRPC I&M staff utilize Wilderness Fellows and trained refuge staff to develop a baseline of wilderness character measures for each refuge with designated wilderness	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> Provide input and assistance as needed (NRPC lead this effort).
SSM 1.3	Beginning in FY13, where appropriate, the I&M Team will assist with the evaluation of assumptions underlying the choice of surrogate species.	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> Provide comment, input, and assistance as requested..
SSM R	Participate in regional surrogate species efforts	<ul style="list-style-type: none"> Participated in RO, SA and GCPO LCC surrogate workshops 	<ul style="list-style-type: none"> Participate in next steps (comment on guidance, serve on teams etc.)

7-Year Plan Task	Task Description	FY 2012 Accomplishments	FY 2013 Work Plan
Region 4 I&M Priorities			
FM 2.2	FM 2.2 By the end of FY16, in collaboration with the Fire Team, identify and prioritize refuges with the largest need to conduct fire effects and other fuel treatment monitoring.	<ul style="list-style-type: none"> Region 4 compiled information from ongoing fuel treatment effects monitoring projects in refuge PRIMR DB's 	<ul style="list-style-type: none"> Region 4 using information from 2012 PRIMR DB's, summarize current/on-going fuel treatment/fire effects monitoring activities on regional refuges. Compile information on historical monitoring projects.
FM 2.3	FM 2.3 By the end of FY18, estimate the funding (includes staff time) necessary to implement a consistent monitoring approach on priority refuges.	<ul style="list-style-type: none"> Region 4 compiled cost and time allotment information from on-going fuel treatment projects in refuge PRIMR DB's. 	<ul style="list-style-type: none"> Region 4 develop cost table for Regional Fuel Treatment Effects Monitoring Plan
FM R4	Update Region 4 Fire Effects monitoring guide.	<ul style="list-style-type: none"> Update Regional Fire Effects Monitoring Guide: I&M worked closely with regional Fire Ecology staff to initiate revisions to the "Fuel and Fire Effects Monitoring Field Guide: USFWS Southeast Region" (2006). Visited multiple field stations (refuges) to discuss how they have historically implemented their fire effects monitoring surveys. Prioritized the list of surveys in the 2006 Field Guide, and consolidated similar methods from multiple surveys; thereby paving the way for a more efficient guidebook. 	<ul style="list-style-type: none"> Continue working together to develop and finalize monitoring guide. Develop PRIMR templates for fire monitoring. Participate in fuel treatment/fire effects monitoring training workshops
FM R4	By the end of FY16, design a monitoring approach to assess vegetation condition in response to fuel treatment applications	<ul style="list-style-type: none"> Attended FMO annual workshop and Monitoring Trends in Burn Severity workshop, and established monthly meetings with Regional Fire Ecology team (Fall/Winter 2011) Gathered vegetation/habitat spatial data and fire history data for Okefenokee NWR (Spring 2012) Reviewed 2006 Fire Atlas developed for Okefenokee NWR (Summer 2012) 	<ul style="list-style-type: none"> Develop field techniques to monitor tree seedling survival across fuel treatment units
FM R4	Overlay fire history maps with plant community information	<ul style="list-style-type: none"> Compiled fuel model, existing vegetation type, and fire regime groups on Okefenokee NWR and placed into a geospatial database (Fall 2012) 	<ul style="list-style-type: none">
FM R4	Improve fuels models.	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> Refine models by including vegetation composition and structure information by community type.

7-Year Plan Task	Task Description	FY 2012 Accomplishments	FY 2013 Work Plan
Region 4 I&M Priorities			
SLR 2.0	Acquire baseline data needed to understand and model sea level rise and other climate related changes to coastal habitats.	<ul style="list-style-type: none"> • 60 RSET (rod surface elevation tables) stations were installed on 18 coastal refuges within the SALCC that will measure rates of sediment accretion and subsidence. • Data will be linked with NPS data and used by the SALCC to verify sea level rise models in addition to helping refuge managers identify critical areas where rates of loss are exceeding the ability of the habitat to respond and make decisions towards managing for future conditions. • This project brought together multiple partners (FWS, NPS, TNC, USGS, NOAA, SALCC) to ensure consistent protocols, implementation, and data management were occurring for data to be combined to address landscape scale questions. • Started planning the long-term monitoring component: training field station staff to take measurements (Fall 2012) and purchased equipment needed to put together four measuring kits to be shared among 18 refuges. • Worked closely with R2 I&M to plan RSET installs and monitoring on coastal refuges in LA and TX as part of SLAMM project. • Started gathering information to organize and understand existing and determine future needs for RSET stations on refuges in FL, AL, MS, and LA. • Partners: NWRs, FWS, NPS-I&M, TNC, USGS-Lafayette and Patuxent, NOAA, and SALCC. 	<ul style="list-style-type: none"> • Continue to provide technical assistance to SALCC SET project. • Train SALCC refuge staff to collect SET, marker horizon and porewater salinity data from SET sites. • Where necessary, assist refuges with SET data collection. • Perform data entry and QA/QC of SET data into NPS SECN database. • Approve vegetation protocol and start conducting vegetation monitoring in conjunction with SET monitoring on 18 coastal refuges. • Complete I&M report for SET project • Work with Atkins to install sea level rise gauge/sonde at Swanquarter NWR • Continue gathering information to organize and understand existing and determine future needs for RSET stations on refuges in FL, AL, MS, and LA. • Continue working closely with R2 I&M to plan RSET installs and monitoring on coastal refuges in LA and TX as part of SLAMM project. •
SLR 2.2	SLR 2.2 By the end of FY15, the I&M Team will identify and catalogue the current version of sediment elevation monitoring methodologies and protocols currently in use across the Service and by Partners. This task requires coordination with Ecological Information Planning Objective 2.0.	<ul style="list-style-type: none"> • R2 and 4 I&M coordinated I&M to identify and coauthor two projects funded by National I&M Office: 1) Evaluating SLAMM data inputs to improve and refine sea-level rise scenarios on refuges within the GCPLCC and 2) Consequences of sea-level rise and anthropogenic stressors on the loss and conversion of wetland habitats for whooping cranes, mottled ducks, and redhead ducks on the GCPLCC • Acquired all existing SLAMM reports for R4 refuges and started to organize information on existing SLAMM projects (to be completed in FY13) 	<ul style="list-style-type: none"> • Continue to participate on project.

7-Year Plan Task	Task Description	FY 2012 Accomplishments	FY 2013 Work Plan
Region 4 I&M Priorities			
SLR 3.1	SLR 3.1 In collaboration with the Ocean and Marine National Coordinator, produce a document that details the results of SLAMM models run to date and provides recommendations for the next steps. The assessment should consider what, if any, additional monitoring information, such as sediment elevation and remote imagery (LiDAR), will improve SLAMM estimates at the local scale. This document should also consider other available sea level rise models. The team will complete assessment and recommendation by the end of FY15.	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Continue and develop spreadsheet relating to SLAMM models already conducted.
MDM 1.0	By the end of FY18, provide baseline abiotic and biotic data needed to proactively evaluate potential impacts on refuge resources by anthropomorphic and natural catastrophes.	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • The I&M team will work with refuge staff to validate the data compiled for the Oil and Gas data information system. Regions 2, 3, and 6 will participate. • Note this focus area needs revisions; suggest that baseline biotic related tasks be moved to BBI and abiotic tasks move to AD
WH 2.1	WH 2.1 By end of FY18, identify those refuges that need to develop disease contingency plans and assist with development to ensure plans are in place.	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Assist Region 4 Migratory Bird program to compile information. In cooperation with Mig Bird program explore pilot use of R4 Mig Bird template Avian Mortality Response Plan. Initial pilot will likely involve 13 NWRs in MS.
WH 3.2	By the end of FY16, identify existing avian monitoring projects that overlap with sampling needs in the development of health parameter, avian species-specific, and pathogen-specific investigations. This task will be coordinated with the Bird Inventory and Monitoring Objective 4.0.	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Work with the R4 Migratory Bird program to provide input and test implementation of Wildlife Heath Event Report being developed by the Univ. of Wisconsin-Madison. The concept for the use of this reporting system within refuges is to facilitate a rapid and efficient understanding of avian mortality events on or near refuges.

7-Year Plan Task	Task Description	FY 2012 Accomplishments	FY 2013 Work Plan
Region 4 I&M Priorities			
R4	Recruit I&M staff	<ul style="list-style-type: none"> Staffing for the South Atlantic LCC geography of the Atlantic Zone was completed in FY 2012 with the addition of Theresa Thom as the Aquatic Ecologist co-located at Savannah NWR in January. The Gulf Zone, with emphasis on the GCPO LCC geography, has been partially staffed. 	<ul style="list-style-type: none"> Recruit I&M staff
R4	Regional Strategic Plan	<ul style="list-style-type: none"> Initiated development of an I&M objectives matrix to capture inventory and monitoring needs of and for refuges. Boxes of objectives include information from refuges needs assessments and needs of FWS programs and partners. Prioritization criteria planned; matrix and criteria will serve as a planning tool. This year worked closely with Migratory Bird partners to identify objective boxes. Partners: Migratory Birds, Regional I&M 	<ul style="list-style-type: none"> Complete Regional strategy
R4	Administration	<ul style="list-style-type: none"> Drafted a MOU/interagency agreement with NPS to integrate operations between FWS Region 4 I&M and the Southeast Coast Network. This document is necessary to outline the relationship between FWS and NPS (e.g., sharing office space). 	<ul style="list-style-type: none"> Complete MOU

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Region 4 I&M Priorities			
R4	<p>Support inventory and monitoring for adaptive management</p> <p>Multiple biotic and abiotic inventory and monitoring projects funded by the Regional I&M rfp.</p> <p>FY11 and FY 2012funded projects address refuge critical inventory and monitoring information needs and help plan and evaluate the effectiveness of conservation strategies implemented by the USFWS and conservation partners in the face of accelerating climate change and threats from other environmental stressors.</p>	<ul style="list-style-type: none"> 35 R4 and 1 R3 Refuges and 3 ES offices were supported across the region in implementation of the Acoustical Bat Monitoring Protocol, including hosting 2 training workshops (Gulf & South Atlantic), technical support and trouble-shooting, and data management coordination and development. <hr/> <p>Cooperators: NWRs, USACE, ERDC, R3 Refuges, R5 I&M, State of Mississippi and USGS- Patuxent</p> <ul style="list-style-type: none"> Bat monitoring for Rafinesque's Big-eared bat and Southeastern myotis (state listed species) on Santee and Savannah NWRs was funded through FY2012 I&M RFP. Initial sampling was conducted in August and September 2012 on both refuges. Equipment and protocols used as part of FY11 I&M bat monitoring contributed significantly to FY 2012effort. I&M provided on-site logistical support and coordination with larger sampling effort(s). <hr/> <p>Cooperators: Santee and Savannah NWRs, Clemson University</p> <ul style="list-style-type: none"> St. Catherine Creek NWR Aquatic Habitat Assessment in Support of Gulf Coastal Plains CPO LC An objective analysis of 21 years of fire history at St. Marks NWR utilizing MTBS mapping protocol. Inventory and Monitoring of the Aquatic Biota of Tallahatchie National Wildlife Refuge Streamline forest data analysis on R4 refuges (White River NWR) Flood impacts to Forest Habitat plots established on White River NWR Support for Water Resource Inventory and Assessments (WRIA) and Hydrogeomorphic analyses (HGM) for Refuges in the Southeast Survey and Monitoring of Sea Turtle Index Nesting Beaches on NWRs in the Southeast Region for Landscape Management and Global Conservation - includes NWRS in FL, GA, SC, and St Croix 	<ul style="list-style-type: none"> Complete the projects selected in FY12. Awarded \$458,000 for 13 projects conducted on refuges with FY 2012funds. Baseline hydrologic monitoring stations at proposed Mountain Bogs NWR Development of a Sentinel Site for Monitoring Climate Change Impacts Collaboratively Operated by the ACE Basin National Wildlife Refuge and the ACE Basin National Estuarine Research Reserve Inventory and Monitoring for Red-cockaded Woodpecker Nesting (Noxubee NWR) Reassessment of population extensions and mapping of five federally endangered listed plants at La Tinaja, Laguna Cartagena National Wildlife Refuge Baseline Monitoring of Indicator Species (butterflies) at Tallgrass Prairie and Chenier Habitats (SW Louisiana Complex) Use of Coastal Pine Savanna by Yellow Rails (Mississippi Sandhill Crane NWR) Baseline Survey for Bats, specifically Rafinesque's Big-eared Bats (<i>Corynorhinus rafinesquii</i>) and Southeastern Myotis (<i>Myotis austroriparius</i>) on the Savannah NWR and Santee NWR Implementation of environmental DNA surveys and integration of standardized protocols for a baseline biometric assessment of fishes in the Savannah National Wildlife Refuge and Little Back River Baseline Population Inventory of Amphibians on the Mountain Longleaf NWR and Screening for the Amphibian Disease <i>Batrachochytrium dendrobatidis</i> Coastal Georgia Aerial Project (Savannah Coastal Complex) Taking advantage of hydrological extremes: A strategy for targeted water monitoring assessments DART (multiple refuges) Development of a robust monitoring tool for aquatic species: applications of molecular techniques to imperiled herpetofauna of the Southeastern US Bat occurrence relative to silvicultural treatments intended to yield Desired Forest Conditions for priority wildlife species (multiple refuges)

7-Year Plan Task	Task Description	FY 2012 Accomplishments	FY 2013 Work Plan
Region 4 I&M Priorities			
		<p>Reports continued:</p> <ul style="list-style-type: none"> • Forest Habitat Evaluation at Atchafalaya NWR • Pine Savannah restoration monitoring –Tammany Holding Tract • Inventory of frog species in the South Carolina Sandhills with a focus on the pine barrens treefrog and the gopher frog • Clarks River National Wildlife Refuge LiDAR • Inventory and Monitoring of Vernal Pools on Dahomey National Wildlife Refuge • Comprehensive Shorebird Surveys on Front Beach Habitat within Cape Romain NWR • Monitoring productivity, dispersal, and habitat restoration/expansion in the Harris Neck NWR wood stork colony. • Groundwater Quality Monitoring at Logan Cave National Wildlife Refuge • LIDAR and Color digital Imagery for Lower Hatchie NWR • Development of biometric and environmental DNA standardized protocols for early detection and population assessment of aquatic invasive species for Arthur R. Marshall Loxahatchee National Wildlife Refuge. • Population dynamics of the king rail <i>Rallus elegans</i> (Mackay Island and Currituck NWRs) • Assess Wet Pine Savanna Response to Refuge Management MS Sandhill Crane • Bat Species Occurrence and Long-Term Bat Population Monitoring on Refuges using Acoustical Detection (multiple western NWRs) • Monitoring the Effects of Climate Change on Waterfowl Abundance in the Mississippi Alluvial Valley: optimizing sampling efficacy and efficiency Measuring Sea Level Rise Across the SALCC • Forest Habitat Inventory Equipment for Refuges • Inventory of Bottomland Hardwood Forests on the Roanoke River NWR and Establishment of Continuous Forest Inventory Plots • Herpetofaunal survey of Santee National Wildlife Refuge 	

7-Year Plan Task	Task Description	FY 2012 Accomplishments	FY 2013 Work Plan
Region 4 I&M Priorities			
R4	<p>Provide technical support for inventory and monitoring</p> <p>Provide assistance with study design, data management, data collection, analysis and reporting to refuges and partners. Work to link local objectives to LCC priorities and fulfill CCP and LCC objectives.</p>	<ul style="list-style-type: none"> • Participated in weekly surveys for turtle crawls and nest hatching events Pea Island NWR (May-Sept). Data is contributed with local volunteer efforts (NEST program) and NPS survey efforts to the larger state program (NC Wildlife Commission). • Conducted monthly SEANET beached bird surveys on Pea Island NWR. • Organized a training session for partners and volunteers to meet with the program coordinator (Sarah Courchesne, Tufts University). • Currently, there are 25+ routes in NC to date (1 NWR, multiple w/partners such as NERRS, Audubon, NC Aquarium, NC Coastal Federation, and many private citizens). • Collaborated w/Craig Harms, DVM at NCSU Center for Marine Sciences and Technologies for all necropsies. • Presented program/data to NC Waterbird Commission meeting with partners from NC State Parks, NC Wildlife Commission, and Audubon. • Participated in forest inventory work with Okefenokee NWR Forest Technicians (Summer 2012) • Discussed forest inventory work with St. Marks NWR Forest Technicians (Summer 2012) • 	<ul style="list-style-type: none"> • Continue to provide technical support for inventory and monitoring to refuges and other partners.
R4	<p>Develop and maintain partnerships</p> <p>Work closely with all LCCs serving on committees and working groups as priorities and processes are defined.</p>	<ul style="list-style-type: none"> • Serve as member of the SALCC consulting team. • Participated in weekly GCPO staff conference calls. • Participated in GCPO staff meetings (1 18 12), and Adaptation Science Workshop (9 18 12). • Assisted with interview process for GCPO GIS position (7 12). • Participated in SALCC third Thursday web-casts (though out year). • Part of team to develop surrogate species training agenda for SALCC geography (9 12). Moderated GCPO geography Surr Species workshop for USFWS and partners (7 12). Coordination meeting with MS Ecological Services Office (10 12). 	<ul style="list-style-type: none"> • Continue to work closely with LCCs.

7-Year Plan Task	Task Description	FY 2012 Accomplishments	FY 2013 Work Plan
Region 4 I&M Priorities			
R4	Communicate I&M information	<ul style="list-style-type: none"> Multiple presentations by I&M staff to refuges and partners outlining the initiative: VA-NC Ecoteam meeting (12/11), Mig Bird Retreat (1/11), GCPO staff meeting (1/18), SEPIF (2/8), GCPO Steering Committee (4/11), S. Fl Ecoteam (5/23), FL aquatic partners (8/2), SCDNR and partners climate summit (9/13). Assisted with organization of a regional HGM Webinar conducted on January 25, 2012. The recording is available at http://bcove.me/dwg3x5xy Regional Fishnet site (Sharepoint) is working smoothly as a sharing space for I&M activities. Migrated information to new site and maintain site organization 	<ul style="list-style-type: none"> Develop FY11 funded projects fact sheets Continue to maintain and organize the regional Fishnet site Complete and update project record documentation for current monitoring projects lead by I&M. Send weekly accomplishments to Chuck for consideration in RDT staff notes. Identify and populate a mechanism (Facebook page, R4 I&M website) to communicate activities to partners.

Appendix 5. Detailed summary table of Region 5 I&M accomplishments for FY 2012 and projects to be initiated in FY 2013 by I&M 7-Year Plan focus groups. AD – Abiotic Data, AQB – Air Quality Biomonitoring, BBI – Baseline Biotic Inventories, BIM – Bird Inventory and Monitoring, DM – Data Management, EIP – Ecological Information Planning, ESARR – Endangered Species Act Refuge Reporting, FM – Fire Monitoring, ISIM – Invasive Species Inventory and Monitoring, MM – Marine Monitoring, PM – Phenological Monitoring, RCA – Refuge Conditions Assessment, RRP – Regional Refuge Portfolio, SLRM – Sea Level Rise Modeling, SSM – Surrogate Species Monitoring, SD – System Development, VHM - Vegetation and Habitat Mapping, WRIM – Water Resources Inventory and Monitoring, WCM – Wilderness Character Monitoring, WH – Wildlife Health

7-Year Plan Task	Task Description	FY 2012 Accomplishments	FY 2013 Work Plan
Region 5 I&M Priorities			
EIP 1.1	I&M Policy	<ul style="list-style-type: none"> I&M coordinator provided comments and feedback throughout the year on various version of the I&M Policy and SPH 	<ul style="list-style-type: none"> Solicit review comments from refuge staffs on draft I&M Policy.
EIP 1.2	Inventory and Monitoring Plans	<ul style="list-style-type: none"> I&M coordinator held workshops for staff from 9 refuges on revising draft Part 1 Tables 1-2 to include in IMPs 	<ul style="list-style-type: none"> Assist with developing guidelines for writing IMPs.
EIP 1.3	Inventory and Monitoring Plans	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> Initiate 2 IMPs; stations TBD
EIP 3.1	Protocol development	<ul style="list-style-type: none"> Initiated a CESU Task Agreement with Univ. of DE to write protocol/SOPs as per national I&M guidance for monitoring saltmarsh integrity in coastal refuges Develop survey protocol for estimating numbers and habitat use of New England cottontails (NECs) 	<ul style="list-style-type: none"> Complete draft protocol for monitoring saltmarsh integrity Complete draft protocol for NECs
EIP 3.2	Protocol framework development	<ul style="list-style-type: none"> Implemented a CESU Task Agreement with Univ. of AK for a postdoc/biometrician to, in part, evaluate distance sampling component of the landbird monitoring protocol 	<ul style="list-style-type: none"> Complete evaluation of distance sampling component and make recommendations
EIP 4.1	Collaboration Refuge Planning	<ul style="list-style-type: none"> I&M coordinator and data manager assisted regional biology staff with review of CCPs and HMPs 	<ul style="list-style-type: none"> Continue assistance as requested
WRIM 1.1, 1.3, 1.6	National I&M Water Team	<ul style="list-style-type: none"> Regional hydrologist (0.5) served on national I&M Water Team 	<ul style="list-style-type: none"> Continue participation
WRIM 1.6	WRIA Completion	<ul style="list-style-type: none"> Two WRIAs completed at: <ul style="list-style-type: none"> Cape May NWR Patuxent NWR 	<ul style="list-style-type: none"> Complete 3 WRIAs at: <ul style="list-style-type: none"> Bombay Hook NWR Erie NWR Montezuma NWR Initiate WRIAs at: <ul style="list-style-type: none"> Canaan Valley NWR Parker River NWR E. B. Forsythe NWR Sunkhaze Meadows NWR Chincoteague NWR S. O. Conte NWR
WRIM 2.0	HGMs	<ul style="list-style-type: none"> Initiated HGM at at Erie NWR 	<ul style="list-style-type: none"> Complete HGM at Erie NWR

7-Year Plan Task	Task Description	FY 2012 Accomplishments	FY 2013 Work Plan
Region 5 I&M Priorities			
WRIM 2.1	Water Quality and Quantity Needs Assessment	<ul style="list-style-type: none"> Regional hydrologist and R5 data manager polled refuges to identify their main water quality and quantity issues 	<ul style="list-style-type: none"> Use survey poll results to inform R5 water inventory and monitoring strategy
WRIM 4.4	Critical Water Monitoring	<ul style="list-style-type: none"> Regional hydrologist worked with Prime Hook NWR staff and State of DE to implement short-term monitoring of water quality and quantity, to inform long-term protocol 	<ul style="list-style-type: none"> Continue monitoring
SD 1.0	ServCat	<ul style="list-style-type: none"> ServCat Pilot station: Parker River NWR Determined availability of annual narratives at R5 refuges. 	<ul style="list-style-type: none"> Test-drive the ServCat database in R5. Support training for field stations. Develop plan for capturing information from field stations into ServCat.
DM 2.1, 4.1, 6.1	Data management Technical Support	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> Region 5 data manager will provide technical support to end users
DM 2.2, 4.2, 6.2	Data Management Quality Control	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> Periodic quality control will be performed by data manager
DM 2.3, 4.3, 6.3	Data Management reporting	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> Customized reports will be generated by R2 Data manager
DM 3.1	PRIMR full-scale implementation	All DRAFT current and proposed surveys are currently entered into PRIMR for R2	<ul style="list-style-type: none"> Determine process to update/import current and proposed surveys. Implement update/import.
DM	National Data Management Subcommittee (OSA)	<ul style="list-style-type: none"> I&M data manager serves on the subcommittee 	<ul style="list-style-type: none"> I&M data manager will continue working with this team
DM	Fish and Wildlife Information Needs and Studies Database-SSP/QRP Proposals	<ul style="list-style-type: none"> I&M data manager serves as the database System Manager. 	<ul style="list-style-type: none"> I&M data manager will continue as the System Manager.
DM	I&M Fishnet Template	<ul style="list-style-type: none"> Developed Fishnet template and guidance for I&M in all regions. 	<ul style="list-style-type: none"> Continued development of sites on FishNet and support to I&M staff using templates.
DM	R5 Project and Budget Tracking	<ul style="list-style-type: none"> I&M Data Manager developed work plan and task tracking forms on SharePoint. 	<ul style="list-style-type: none"> Continue use of online work plan and task tracking.
ESA 1.1	Endangered Species Validation	<ul style="list-style-type: none"> I&M coordinator and data manager reviewed and commented on draft data call letter Provided two points of contact to assist R5 refuges with responding to this data call 	<ul style="list-style-type: none"> Provide assistance to refuge staff as needed
VHM	Vegetation and Natural Community Inventories	<ul style="list-style-type: none"> Contractor collected near infrared aerial photography on 51,555 acres of vegetation on 4 northern forest refuges and processed imagery; forest and non-forest natural communities at Silvio O. Conte Blueberry Swamp Division and Nulhegan Basin Division 	<ul style="list-style-type: none"> Final products will be completed
BIM	Saltmarsh Sparrow Habitat Use Inventory	<ul style="list-style-type: none"> Identified important areas of use by saltmarsh sparrows to inform monitoring protocols on Rachel Carson NWR 	<ul style="list-style-type: none"> Final report

7-Year Plan Task	Task Description	FY 2012 Accomplishments	FY 2013 Work Plan
Region 5 I&M Priorities			
BIM	Red Knot Migratory and Wintering Areas	<ul style="list-style-type: none"> • Captured 11 juveniles and equipped with geolocators in ongoing study to identify critical migratory routes and wintering areas to inform monitoring 	<ul style="list-style-type: none"> • Progress report
BIM	Coastal Bat and Bird Migration Monitoring	<ul style="list-style-type: none"> • ME Coastal Islands NWR crews used mist nests, conducted visual surveys, and recorded birds acoustically from August through the end of October • Used both passive and active acoustic draft protocols developed by USFWS Region 5 to conduct resident bat surveys on the refuge. 	<ul style="list-style-type: none"> • Final report of bird results • Analyze bat acoustical data and report results
BIM	Monitoring Saltmarsh Sparrow Productivity	<ul style="list-style-type: none"> • Completed the 6th year of productivity monitoring of saltmarsh sparrows breeding at Parker River NWR • Banded 153 new salt marsh sparrows, and found and monitored 12 active nests • continued to investigate possible association between productivity and elevated mercury levels at Parker River 	<ul style="list-style-type: none"> • Postdoc biometrician will assist with analysis of long-term monitoring data • Write draft final report

7-Year Plan Task	Task Description	FY 2012Accomplishments	FY 2013 Work Plan
Region 5 I&M Priorities			
BBI 2.0	Baseline Biotic Inventories	<ul style="list-style-type: none"> • Region 5 developed and piloted a baseline acoustical survey of resident bats on 9 refuges • Obtained baseline population estimates of New England cottontail at Rachel Carson NWR • Collected baseline movement and habitat use information on radio-tagged Blanding's turtle and northern red-bellied cooters at E. MA Complex • Trapped and radiotagged Eastern and New England cottontails NECs), and updated habitat protocols, at E. MA Complex. Verified occurrence of NEC at Mashpee NWR • Monitored hatching success, chick growth rates, and overall fledging success for the various seabirds nesting on the seven ME Coastal Islands NWR managed colonies • Tracked and identified location of seabird foraging areas, associated water depth, and any other species observed foraging; based on these and similar data, MCINWR staff are currently working with the Bureau of Ocean Energy Management and a commercial developer (StatOil) in an effort to reduce the potential impact of an offshore wind facility (floating turbines) proposed for installation in 2013 • Monomy NWR staff, volunteer interns, and Mass Audubon worked closely with a contractor to conduct 10 surveys of the threatened northeastern beach tiger beetle; a high count of 1228 adult tiger beetles was recorded during one day -. This high count combined with mark and resight data will be used to estimate the population size. • Rhode Island National Wildlife Refuge Complex completed the second year of data collection for the Saltmarsh Habitat and Avian Research Project (SHARP): 84 species were observed, with the three most common songbird species being the red-wing blackbird, European starling, and the song sparrow; 113 saltmarsh sparrows were detected, 73 (24 nestlings) were banded and 26 nests were monitored (13 chicks fledged) 	<ul style="list-style-type: none"> • Complete reports on results of inventories

7-Year Plan Task	Task Description	FY 2012 Accomplishments	FY 2013 Work Plan
Region 5 I&M Priorities			
BBI 2.0	Baseline Biotic Inventories	<ul style="list-style-type: none"> • Blackwater NWR staff and cooperators with MD Audubon conducted saltmarsh bird surveys at 103 points; of the 103 survey points, 78 were points also surveyed in 2011 as part of the SHARP study, and 25 were new points added in 2012 in order to fill a geographical gap in coverage south of the refuge • Conducted an inventory for bog turtles at Cherry Valley NWR, which yielded the first documented individual of this federally threatened species on the refuge. • Continued capture and testing of bats for white-nosed syndrome (surveys since 2006) at Great Swamp NWR and participated in regionwide pilot project for developing a standardized acoustical protocol for inventorying and monitoring resident bats 	<ul style="list-style-type: none"> • Complete reports on results of inventories
AM 1.1	Adaptive Management IWMM	<ul style="list-style-type: none"> • Continued pilot monitoring at the following stations: <ul style="list-style-type: none"> ○ Back Bay NWR ○ Bombay Hook NWR ○ Blackwater NWR ○ Cape May NWR ○ Chincoteague NWR ○ Eastern Neck NWR ○ E. B. Forsythe NWR ○ Great Meadows NWR ○ Great Swamp NWR ○ Iroquois NWR ○ Montezuma NWR ○ Parker River NWR ○ Potomac NWR ○ Patuxent NRR ○ Prime Hook NWR ○ Stewart B. McKinney NWR ○ Wallkill River NWR 	<ul style="list-style-type: none"> • Continue pilot monitoring.
AM 1.1	Adaptive Management Wetland loss and Fire Effects	<ul style="list-style-type: none"> • Collected data in third year of 5-year adaptive management project investigating wetland loss and fire effects at Blackwater NWR • Used Real-Time Kinematic (RTK) Global Navigation Satellite System (GNSS) to measure coastal marsh elevations along 30 transects divided among two strata 	<ul style="list-style-type: none"> • Interim evaluation of the data • Continue to work on the decision model, incorporating 2011 and 2010 elevation data.
AM 1.1	Fall Migrating Bird/Shrub Habitat Management	<ul style="list-style-type: none"> • Completed a draft decision model linking fall migrating bird shrub habitat measures to management decisions 	<ul style="list-style-type: none"> • Finalize habitat decision model • Re-assess fall migrating bird population component and outline steps forward

7-Year Plan Task	Task Description	FY 2012 Accomplishments	FY 2013 Work Plan
Region 5 I&M Priorities			
AM 1.1	Coastal Ecosystem Support Project	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Develop refuge specific multi objective decision support analysis that integrates regional coastal projects (i.e. shoreline surveys), models (IWMM, Phragmites Study, Coastal Impoundment , Salt Marsh Integrity Project, etc.) and refuge-specific management objectives. • Using a base decision framework, conduct workshops with individual refuges or a few refuges, to flesh out refuge specific objectives and guide data input, resulting in the optimization of management actions.
AM 1.1, CMS 1.0	Salt Marsh Integrity (SMI) Assessment Project	<ul style="list-style-type: none"> • Held 2 workshops with cooperators and staff from three refuges to apply a decision analysis tool to managing refuge saltmarsh units • Implemented the SMI assessment project at 11 coastal refuges • Held 6 on-site training sessions • A web-based SharePoint site was established for sharing protocols, datasheets and other informational materials • Began installation of SETs on participating refuges • Organized SET database webinar with NPS National Capitol and Southeast Networks to give demonstrations of their different SET data collection systems • Initiated a CESU Task Agreement with Univ. of DE to develop SMI protocols as per Refuge I&M standards 	<ul style="list-style-type: none"> • Continue to implement the SMI project on 9 coastal refuges and expand to 4-5 more • Install the remaining SETs (total=36 regionwide) on the original 11 refuges • Strategically establish monuments, approved by R5 Division of Realty to provide control points for SET arrays and for beach elevation surveys • Establish clear link between SMI and Open Marsh Water Management (OMWM) SETs and SLR SETs • Work with Univ of DE to develop draft SMI protocols as per Refuge I&M standards • Develop a decision-support tool to improve management of salt marshes (see Coastal Ecosystem Support Project)
AM 1.1, CMS 1.0	Phragmites Adaptive Management Study	<ul style="list-style-type: none"> • Initiated development of an adaptive management approach for managing Phragmites on R5 refuges in a sustainable manner 	<ul style="list-style-type: none"> • Develop a decision-support tool to improve effectiveness of Phragmites control (see Coastal Ecosystem Support Project) • Develop draft monitoring protocols as per Refuge I&M standards • Determine baseline information needed (such as aerial photography) to initiate on-the-ground work • Hold SDM workshop to determine utility functions • Develop standardized database for data management
SSM 1.1	Support the Surrogate Species Process	<ul style="list-style-type: none"> • I&M coordinator and data manager participated in regional surrogate/representative species workshops • Provided comments on surrogate species draft guidance 	<ul style="list-style-type: none"> • Continue participation in surrogate species process
CMS 1.1	Increase Information Sharing	<ul style="list-style-type: none"> • I&M Coordinator met with representatives from the North Atlantic LCC, NPS and an NGO to discuss priorities and opportunities for information sharing of projects in coastal systems. 	<ul style="list-style-type: none"> • Continue collaborations

7-Year Plan Task	Task Description	FY 2012Accomplishments	FY 2013 Work Plan
Region 5 I&M Priorities			
CMS 2.0	Baseline Information to Understand Coastal Systems in Face of Climate Change and other Stressors	<ul style="list-style-type: none"> As part of a coastal shoreline monitoring project, I&M and refuge staffs collaborated with NPS, NERRs, and Rutgers University cooperators to perform surveys of shoreline position along the beachface, and measured coastal topography of the dunes and beach 	<ul style="list-style-type: none"> As funding allows, perform shoreline change analysis, development of annual reports for participating refuges, and support to refuges that are beginning coastal topography surveys

Appendix 6. Detailed summary table of Region 6 I&M accomplishments for FY 2012 and projects to be initiated in FY 2013 by I&M 7-Year Plan focus groups. AD – Abiotic Data, AQB – Air Quality Biomonitoring, BBI – Baseline Biotic Inventories, BIM – Bird Inventory and Monitoring, DM – Data Management, EIP – Ecological Information Planning, ESARR – Endangered Species Act Refuge Reporting, FM – Fire Monitoring, ISIM – Invasive Species Inventory and Monitoring, MM – Marine Monitoring, PM – Phenological Monitoring, RCA – Refuge Conditions Assessment, RRP – Regional Refuge Portfolio, SLRM – Sea Level Rise Modeling, SSM – Surrogate Species Monitoring, SD – System Development, VHM - Vegetation and Habitat Mapping, WRIM – Water Resources Inventory and Monitoring, WCM – Wilderness Character Monitoring, WH – Wildlife Health

7-Year Plan Task	Task Description	FY 2012 Accomplishments	FY 2013 Work Plan
Region 6 I&M Priorities			
EIP 1.2 EIP 1.3 EIP 1.4	Inventory and Monitoring Plans	<ul style="list-style-type: none"> Began planning for development of IMP simultaneously with HMP development at Kulm WMD and Fish Springs. 	<ul style="list-style-type: none"> Initiate 3 IMPs on the following stations: <ul style="list-style-type: none"> Kulm WMD Madison WMD Arapaho NWR Quivira NWR Fish Springs NWR Charles M. Russell (Sentinel Plant IMP)
EIP 3.1 EIP 3.2		<ul style="list-style-type: none"> Marsh bird monitoring and database: supported database and monitoring efforts on field stations and worked with USGS Patuxent WRC data manager and HQ I&M staff to continue support and maintenance of the databas; provided suggestions and comments on monitoring questions and issues related to the National Marsh Bird Monitoring Framework and Database. 	<ul style="list-style-type: none"> Support the transition of the national Marsh Bird Database from USGS Patuxent WRC to NRPC by working with Patuxent database manager, Courtney Conway of Idaho Coop. Unit, and R3 and HQ Mig. Bird Office.
EIP 4.1	Regional cross-program integration to integrate CCP, HMP, and IMP.	<ul style="list-style-type: none"> DRAFT: Prepared agenda, facilitated two meetings with other regional divisions (Refuge Planning) and programs (Water Resources, Ecol. Service, etc.) staff to discuss integration and development of a cross-program integration plan to serve field station data and science needs. Completed draft whitepaper. 	<ul style="list-style-type: none"> Complete the cross-program whitepaper and distribute to other regions and NRPC staff, as well as to other divisions (Planning) and programs. Attend the I&M/Planning meeting in Dec. 2012
WRIM 1.6	Development and implementation of WRIA information system	<ul style="list-style-type: none"> Completed WRIA on Quivira NWR 	<ul style="list-style-type: none"> Coordinate with regional WRD and HQ WRD to initiate WRIA at Kulm WMD and Chase Lake NWR/WMD.
WRIM 4.6	Apply national monitoring standards for monitoring of refuge water quality and quantity.	<ul style="list-style-type: none"> Water inventory and Monitoring priorities include: Baca, Monte Vista, Quivira. Worked with WRD to provide water monitoring support to Lee Metcalf, Fish Springs, and Red Rock Lakes. Built water quality data database and assisting with time-series analysis of existing WQ data for Bowdoin Baseline water quality and quantity monitoring at Arapaho NWR. 	<ul style="list-style-type: none"> Continue to coordinate with regional WRD and HQ WRD to inventory and monitoring water quality and quantity at the following stations: <ul style="list-style-type: none"> Baca, Monte Vista, Lee Metcalf, Fish Springs, Red Rock Lakes.

7-Year Plan Task	Task Description	FY 2012 Accomplishments	FY 2013 Work Plan
Region 6 I&M Priorities			
SD 2.1 SD 2.2	Deliver training for ServCat	<ul style="list-style-type: none"> Database managers helped develop and took training for ServCat 	<ul style="list-style-type: none"> Database managers will hold training sessions and assist refuge staff with populating ServCat.
SD 4.1 SD 5.1 SD 5.2 SD 6.1	Development and Implementation of PRIMR	<ul style="list-style-type: none"> I&M staff served on PRIMR working teams and provided comments on PRIMR database and products. 	<ul style="list-style-type: none"> Beta test PRIMR on the six stations that are up for IMP development: <ul style="list-style-type: none"> Kulm WMD Madison WMD Arapaho NWR Quivira NWR Fish Springs NWR Charles M. Russell (Sentinel Plant IMP)
DM 1.1 DM 1.2	ServCat full-scale implementation	<ul style="list-style-type: none"> Completed piloting ServCat on Tewaukon refuge Coordinated with Regional Archeologist to merge her legacy reports and photos with ServCat Upgrade and repair the vegetation database at the Rocky Mountain Arsenal NWR. 	<ul style="list-style-type: none"> Populate ServCat on at least 9 stations as part of the pre-planning process. <ul style="list-style-type: none"> Bear River Rocky Mountain Arsenal John and Louise Seier Valentine Fort Niobrara Crescent Lake National Bison Range National Elk Refuge Charles M. Russell
DM 3.1	PRIMR full-scale implementation	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> Database managers and zone biologists will enter survey information in PRIMR on at least 6 field stations.
ISIM 1.0 ISIM 2.0 ISIM 3.1	Invasive species inventory and monitoring	<ul style="list-style-type: none"> Database managers and zone biologists coordinated training sessions (Prairie Zone and South Zone) with Region 6 Invasive Species Coordinator to train field staff to identify, map (Kirwin), and conduct Early Detection Rapid Response (EDRR) on several field stations. Zone biologist assisted Regional Invasive species coordinator and staff at Quivira NWR to conduct the national invasive species inventory project. 	<ul style="list-style-type: none"> Continue to coordinate and support invasive species EDRR and mapping at field stations. Support expanding national pilot as needed.
ESARR 1.3	Assessment and implementation of I&M Invasive Species Pilot project	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> Validate ESA species list in the ESA database for all field stations.

7-Year Plan Task	Task Description	FY 2012 Accomplishments	FY 2013 Work Plan
Region 6 I&M Priorities			
VHM	Provide support to field stations for vegetation and habitat mapping for habitat inventory and monitoring and for planning purposes.	<ul style="list-style-type: none"> Assisted field stations with conducting veg. mapping using sound protocols (Fish Springs, Arrowwood, Tewaukon, Sand Lake, Kirwin, and Ft. Niobrara (with veg. mapping proposal) (Dullum and Zorn). Assisted field stations with LiDar mapping assessment; coordinated with USGS for LiDAR mapping in MT (Dullum); Assisted with LiDAR informatioin gathering for Tewaukon (Zorn); Assisted Marais des Cygnes in assessing LiDar needs and obtaining and processing data (Laubhan and Artmann). 	<ul style="list-style-type: none"> Continue to provide support for veg. and habitat mapping as requested by field station staff for purposes of inventory, monitoring, and refuge and landscape planning.
BIM 1.0 BIM 1.3 BIM1.4 BIM 2.2	Establish standardized, integrated and coordinated bird monitoring across the Service	<ul style="list-style-type: none"> R6 I&M coordinator served on the steering committee for the National Bird Monitoring Team. R6 I&M coordinator coordinated and co-lead a multi-program, multi-agency team to develop a framework for landscape scale grassland bird monitoring. 	<ul style="list-style-type: none"> R6 I&M coordinator serve on the steering committee for the National Bird Monitoring Team. R6 I&M coordinator lead the Grassland Bird Monitoring Working Group to initiate efforts to develop objectives, assess protocols for grassland bird monitoring. I&M coordinator work with the Waterbird WG to convert the Marsh Bird Monitoring SOP into a National I&M policy format.

7-Year Plan Task	Task Description	FY 2012 Accomplishments	FY 2013 Work Plan
Region 6 I&M Priorities			
BBI		<ul style="list-style-type: none"> • Development of techniques to census and monitoring colonial waterbirds at Chase Lake NWR and WMD (Cooperators are station staff, I&M staff, and USGS at Northern Prairie WRC). • Inventory of grasshopper species composition and abundance in mixed-grass prairies of eastern SD, lead by Huron WMD staff. • Investigating how landscape structure affect patterns of grassland songbird habitat selection and abundance in South central ND, lead by Kulm WMD biologist. • Monitoring NER gray wolf population and wolf effects on elk at the National Elk Refuge . • Invasive species inventory, monitoring and management: to control Canada Thistle on Tewaukon NWR. • Butterfly inventory in the prairies: Range-wide surveys (inventory) for prairie butterfly species of concern (led by Waubay NWR). • Monitoring and quantifying overlap in resource use and potential for competition among native and nonnative fish (led by Red Rock Lakes staff). • Monitoring body condition of spring migrating Northern Pintail at the Rainwater Basin (led by Rainwater Basin WMD staff). • Conduct initial inventory of the extent of the Phragmites infestation in the Bear River watershed, involving multi-agency efforts to initiate a plan to control Phragmites (led by Bear River staff). • Inventory of the conditions of wetland habitats in the Devils Lake WMD to assess the extent of hybrid cattail infestation (led by Devils lake WMD staff). • Conduct an assesement of the woodlands and prairie habitat conditions at Sullys Hill National Game Preserve Mig. (led by Sullys Hill NWR staff). • Monitoring changes in vegetation 	<ul style="list-style-type: none"> • Continue to support FY 2012 projects (those that need multiple year support) • Work with HQ staff to assist with BBI activities

7-Year Plan Task	Task Description	FY 2012 Accomplishments	FY 2013 Work Plan
Region 6 I&M Priorities			
PM		<ul style="list-style-type: none"> Phenology monitoring in the prairies: biologists at 20 refuges and wetland management districts, along with I&M zone biologists in R6 and R3 are working on developing a phenology monitoring protocol that will provide for consistent, high quality information on the phenological progression of smooth brome. This information is required annually to classify management actions on native prairie management units to achieving effective management results (current cooperators are I&M staff, refuge biologists, and USGS at Northern Prairie WRC) 	<ul style="list-style-type: none"> Continue to work on development of the smooth brome monitoring protocol and explore additional collaboration from PPP LCC, NRPC and regional and national invasive species programs. Work with HQ staff to assist with phenology related items.
AM 1.1	Defining AM	<ul style="list-style-type: none"> I&M coordinator serves on the Adaptive Management 7-yr plan working group to define AM and to develop workplan to address AM needs on NWRs. I&M coordinator prepared a whitepaper addressing the need of AM within the Service; submitted to the Service's Science Committee to discuss, address, and support the need to define, implement, and support AM. 	<ul style="list-style-type: none"> Regional I&M coordinator work with the Science Committee and with the Visions team for Recommendation #6 (AM) to evaluate the needs for defining, clarifying, and implementation of various levels of AM within the FWS.

7-Year Plan Task	Task Description	FY 2012 Accomplishments	FY 2013 Work Plan
Region 6 I&M Priorities			
AM 1.2	Support AM projects	<ul style="list-style-type: none"> • DBR staff provided extensive support to several AM projects involving multi-region, multi-stations: <ul style="list-style-type: none"> ○ Native Prairie AM: <ul style="list-style-type: none"> ▪ Morris ▪ Neal Smith ▪ Big Stone ▪ Detroit Lakes ▪ J. Clark Salyer ▪ Benton Lake ▪ Chase Lake ▪ Des Lacs ▪ Kulm ▪ Tewaukon ▪ Arrowwood ▪ Audubon ▪ Devils Lake ▪ Huron ▪ Medicine Lake ▪ Long Lake ▪ Lostwood ▪ Madison ▪ Waubay ▪ Sand Lake ▪ Bowdoin ○ Reed Canary Grass AM <ul style="list-style-type: none"> ▪ Tewaukon ▪ Madison ▪ Rainwater Basin ▪ Minnesota Valley ▪ Upper Mississippi River complex <ul style="list-style-type: none"> • La Crosse District • MacGregor District • Winona District ▪ Port Louisa ▪ Swan Lake ▪ Squaw Creek ○ Cattail management <ul style="list-style-type: none"> ▪ Agassiz ▪ Sherburne ▪ Horicon ▪ Leopold ▪ Iroquois 	<ul style="list-style-type: none"> • Continue to support multi-station AM projects. • Evaluate the need and resources needed to initiate new projects.

7-Year Plan Task	Task Description	FY 2012 Accomplishments	FY 2013 Work Plan
Region 6 I&M Priorities			
WCM 1.0		<ul style="list-style-type: none"> • No activities that require DBR staff. 	<ul style="list-style-type: none"> • Support HQ staff to conduct training and establish WCM monitoring on stations if necessary.
SSM 1.1 SSM 1.2	Support the surrogate species selection and implementation process	<ul style="list-style-type: none"> • DBR staff provided input into surrogate species guidance. 	<ul style="list-style-type: none"> • Integrate surrogate species into station planning process and documents as appropriate.
RRP	Regional Refuge Portfolio	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Link refuge portfolio focus area with R6 cross-program integration plan.
WH		<ul style="list-style-type: none"> • Monitoring the effectiveness of waterbird carcass removal in wetlands, led by Sand Lake NWR staff. 	<ul style="list-style-type: none"> •

Appendix 7. Detailed summary table of Region 7 I&M accomplishments for FY 2012 and projects to be initiated in FY 2013 by I&M 7-Year Plan focus groups. AD – Abiotic Data, AQB – Air Quality Biomonitoring, BBI – Baseline Biotic Inventories, BIM – Bird Inventory and Monitoring, DM – Data Management, EIP – Ecological Information Planning, ESARR – Endangered Species Act Refuge Reporting, FM – Fire Monitoring, ISIM – Invasive Species Inventory and Monitoring, MM – Marine Monitoring, PM – Phenological Monitoring, RCA – Refuge Conditions Assessment, RRP – Regional Refuge Portfolio, SLRM – Sea Level Rise Modeling, SSM – Surrogate Species Monitoring, SD – System Development, VHM - Vegetation and Habitat Mapping, WRIM – Water Resources Inventory and Monitoring, WCM – Wilderness Character Monitoring, WH – Wildlife Health

7-Year Plan Task	Task Description	FY 2012 Accomplishments	FY 2013 Work Plan
Region 7 I&M Priorities			
EIP 1.1	I&M policy	<ul style="list-style-type: none"> Regional biometrician participated on team to develop Survey Protocol Handbook (SPH) I&M coordinator provided comments and feedback throughout the year on various version of the I&M Policy and SPH 	<ul style="list-style-type: none"> I&M coordinator will facilitate approval of the policy in R7 and begin implementation.
EIP 1.2 EIP 1.3	Inventory and Monitoring Plans	<ul style="list-style-type: none"> I&M coordinator assisted development of IMP process and outline, and provided examples of previously approved IMPs for R7 	<ul style="list-style-type: none"> Develop and pilot a Refuge needs assessment protocol in preparation for IMP development for 2 stations Initiate IMPs on 2 stations TBD depending on timing and availability of Refuge staff
EIP 3.1 EIP 3.2	Development of protocols	<ul style="list-style-type: none"> Regional biometrician participated on team to prepare the Survey Protocol Handbook for Director's approval. Provided examples of developed protocols from R7 to guide development of new protocols Regional biometrician surveyed R7 Refuges on moose survey protocols and presented results at the Alaska Chapter of the American Statistical Association 	<ul style="list-style-type: none"> I&M coordinator and refuge biometrician will provide comment to finalize the Survey Protocol Handbook. Refuge Biometrician will coordinate with biologists and partner agency biometricians to develop a workshop on statewide coordination of moose surveys
EIP 4.1	Collaboration with Planning Division	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> The R7 I&M coordinator will attend a joint I&M and Planning meeting in December 2012 and identify at least one area where could better inform the next round of CCPs.
WRIM 1.2	Development and implementation of WRIA information system	<ul style="list-style-type: none"> Data manager developed a Water Resource Inventory Processing Tool (WRIPT) to harvest national databases for WRIAs 	<ul style="list-style-type: none"> Data manager and Water Resources Division will use the WRIPT to inform water resource assessments
WRIM 1.6	WRIA completion	<ul style="list-style-type: none"> Contracted with the UAA Natural Heritage Program to batch process data for WRIAs 	<ul style="list-style-type: none"> I&M will support Water Resources Division to complete WRIAs for Tetlin and Kanuti NWRs
WRIM 4.1 WRIM 4.5	Coordinated water quality and quantity effort	<ul style="list-style-type: none"> Purchased equipment to upgrade and allow continuation of water monitoring on 4 Refuges (Becharof, Kanuti, Tetlin, and Togiak) Provided training to 6 field stations on use of Acoustic Doppler Current Profiler (ADCP) to improve water monitoring skills and collaboration with partners (NPS) 	<ul style="list-style-type: none"> Chief of the Water Resources Branch will serve on the national Water Monitoring team to develop national water monitoring objectives and protocols Install equipment to continue water monitoring on 4 Refuges (Becharof, Kanuti, Tetlin, and Togiak)

7-Year Plan Task	Task Description	FY 2012 Accomplishments	FY 2013 Work Plan
Region 7 I&M Priorities			
SD 4.1	Development and Implementation of PRIMR	<ul style="list-style-type: none"> I&M coordinator participated on national team to identify key fields and domains. Data managers participated on team that initiated development of centralized PRIMR. 	<ul style="list-style-type: none"> Data manager will serve on national team developing the PRIMR database functionality
SD 7.1	Species database module	<ul style="list-style-type: none"> Populated species database developed in R7 Received comments and incorporated comments on draft species list for all 16 R7 refuges I&M coordinator and data manager participated in working group to initiate evaluation of existing systems and design requirements 	<ul style="list-style-type: none"> Data manager will serve on species inventory database review team
DM 1.2	ServCat full-scale implementation	<ul style="list-style-type: none"> ARLIS scanned 180 Annual Reports Data manager assisted with pilot ServCat project on Kenai NWR 	<ul style="list-style-type: none"> Upload annual narratives into ServCat
DM 3.1 DM 3.2	PRIMR full-scale implementation	<ul style="list-style-type: none"> The PRIMR distributed database was populated for 8 stations: Alaska Maritime, Kanuti, Kenai, Kodiak, Selawik, Tetlin, Togiak, Yukon Flats 	<ul style="list-style-type: none"> PRIMR database will be populated for the 6 remaining R7 stations: Alaska Peninsula-Becharof, Arctic, Innoko, Izembek, Koyukuk-Nowitna, Yukon Delta
DM 4.1 DM 4.2	Technical support for PRIMR database	<ul style="list-style-type: none"> An introductory webinar for the PRIMR database was delivered to all R7 stations Refuge specific training was scheduled and delivered to Alaska Maritime, Arctic, Kanuti, Kenai, Kodiak, Selawik, Tetlin, Togiak, Yukon Flats Data manager developed regional database for PRIMR surveys 	<ul style="list-style-type: none"> Data managers will provide technical support to PRIMR users as needed Data managers will provide quality control checks Data manager will continue development of Regional survey database for use by R7 biologists
DM 5.1 DM 5.2	Species occurrence data	<ul style="list-style-type: none"> In cooperation with Kenai Refuge staff, entered data into pilot species database for all 16 R7 Refuges. R7 Biotic Inventory team identified terrestrial vegetation and arthropod inventories as crucial to future monitoring for climate and other anthropogenic and natural change. Developed objectives and hired term botanist to implement in FY13. Processed and vouchered 660 bryophyte, 345 lichen, and 199 vascular plant species from Unimak and Kasatochi islands on Alaska Maritime NWR Collected soil data from Adak island (Alaska Maritime NWR) to support interpretation of previously surveyed vegetation data 	<ul style="list-style-type: none"> I&M botanist, data manager, and refuge biometrician will head technical committee to develop survey protocol for biotic inventories, and will implement in FY13 field season (number of Refuges completed this year TBD, likely 3-4).
DM 6.1 DM 6.2	Species database module	<ul style="list-style-type: none"> Species observation data were sent out for review and comments and corrections were incorporated. 	<ul style="list-style-type: none"> Data manager will continue development and management of species database, and integrate with national species observation database

7-Year Plan Task	Task Description	FY 2012 Accomplishments	FY 2013 Work Plan
Region 7 I&M Priorities			
ESARR 1.1 ESARR 1.2 ESARR 2.1	ESA listed species on Refuges	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Data managers will assist Refuges as needed to complete the required reporting for ESA species on their refuge lands
VHM 1.1 VHM 1.2	Summary of vegetation data layers for Refuges	<ul style="list-style-type: none"> • Data manager assured completion of GAC survey, which included questions on availability and quality of vegetation data • Contact to complete a 1:7.5M scale vegetation map of the boreal ecoregion in Alaska as part of an international effort to produce a unified Circumboreal Arctic Vegetation Map under CAFF (Conservation of Arctic Flora and Fauna) 	<ul style="list-style-type: none"> • Data manager will work with GAC team to summarize FY 2012 survey data
AD 1.0 AD 2.1	Acquire abiotic data	<ul style="list-style-type: none"> • Contracted through USGS acquisition of IfSAR data for Innoko and Selawik NWRs in coordination with the Alaska Statewide Digital Mapping Initiative (SDMI) • Acquired LIDAR for the Kwethluk and Tulusak Rivers on Yukon Delta NWR to model surface and groundwater interactions for restoration planning • Data manager assured completion of GAC survey, which included questions on availability and quality of abiotic data 	<ul style="list-style-type: none"> • I&M coordinator will continue involvement with SDMI team to obtain IfSAR data for Arctic and Yukon Flats NWRs • Data manager will work with GAC team to summarize FY 2012 survey data to help estimate costs of obtaining abiotic data layers for Refuges and partners
BIM 1.1 BIM 1.2 BIM 1.4	Bird team and surrogate bird species	<ul style="list-style-type: none"> • I&M coordinator participated on monthly calls for national Bird Monitoring Team • I&M coordinator developed synopsis of priority tasks for Boreal Forest bird and for Seabird monitoring 	<ul style="list-style-type: none"> • I&M coordinator will continue participation on national team • I&M coordinator will work with PIF and MBM to address priority tasks identified in FY 2012 • I&M coordinator will work with FWS and partners to develop surrogate bird species list for the Alaska Region • I&M coordinator will use PRIMR data to identify gaps in bird monitoring on R7 Refuges
BBI 1.1 BBI 1.2 BBI 2.0	Acquire existing inventory data, develop species list and bird species list, conduct biotic inventories	<ul style="list-style-type: none"> • Data manager and I&M coordinator serve on national team to develop the species observation database • Data managers acquired species observation databases from Izembek and Selawik NWRs • Data managers populated and received comments on draft species list for all 16 R7 refuges (see SD 7.1) • R7 Biotic Inventory team identified terrestrial vegetation and arthropod inventories as crucial to future monitoring for climate and other anthropogenic and natural change. Developed objectives and hired term botanist to implement in FY13. 	<ul style="list-style-type: none"> • Data manager will serve on national team to develop the species observation database • I&M botanist, data manager, and refuge biometrician will head technical committee to develop survey protocol for biotic inventories, and will implement in FY13 field season (number of Refuges completed this year TBD, likely 3-4).

7-Year Plan Task	Task Description	FY 2012 Accomplishments	FY 2013 Work Plan
Region 7 I&M Priorities			
PM 1.3	NPN landing page and data management	<ul style="list-style-type: none"> I&M coordinator, data manager, and R7 Phenology Team provided information to NPN staff on data management tools needed for Refuge phenology data 	<ul style="list-style-type: none"> I&M coordinator, data manager, and R7 Phenology Team will provide information to NPN staff on data management tools needed for Refuge phenology data
WCM 1.0	Conduct Wilderness Character Monitoring	<ul style="list-style-type: none"> Wilderness Fellows conducted wilderness character monitoring on Alaska Maritime NWR 	<ul style="list-style-type: none"> Pending funding and staffing, Wilderness Fellows will conduct wilderness character monitoring on the 6 remaining Alaska NWRs with designated wilderness areas (Togiak, Yukon Delta, Arctic, Innoko, Selawik, and Koyukuk)
SSM 1.1 SSM 1.3	Surrogate species	<ul style="list-style-type: none"> I&M coordinator participated in pilot workshop to provide input to technical guidance document 	<ul style="list-style-type: none"> I&M coordinator will provide input to technical guidance document through DTS or sharepoint I&M coordinator will work with FWS and partners to develop priority species list and potential surrogate species list
SLR 1.0 SLR 2.0	Coastal sea level rise monitoring	<ul style="list-style-type: none"> Provided PRIMR data to the Alaska Ocean Observing System for inclusion in the Arctic Research Assets Database for 4 Refuges (Alaska Maritime, Kodiak, Togiak, Selawik) within the Western Alaska LCC 	<ul style="list-style-type: none"> Will continue collaboration with Western Alaska LCC to share expertise and resources contributing to modeling SLR on Alaska's western coast
MDM 1.1	Provide data to inform marine disaster monitoring	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> Data manager will serve on GAC to validate data to be included in the geospatial database of oil and gas infrastructure

Appendix 8. Detailed summary table of Region 8 I&M accomplishments for FY 2012 and projects to be initiated in FY 2013 by I&M 7-Year Plan focus groups. AD – Abiotic Data, AQB – Air Quality Biomonitoring, BBI – Baseline Biotic Inventories, BIM – Bird Inventory and Monitoring, DM – Data Management, EIP – Ecological Information Planning, ESARR – Endangered Species Act Refuge Reporting, FM – Fire Monitoring, ISIM – Invasive Species Inventory and Monitoring, MM – Marine Monitoring, PM – Phenological Monitoring, RCA – Refuge Conditions Assessment, RRP – Regional Refuge Portfolio, SLRM – Sea Level Rise Modeling, SSM – Surrogate Species Monitoring, SD – System Development, VHM - Vegetation and Habitat Mapping, WRIM – Water Resources Inventory and Monitoring, WCM – Wilderness Character Monitoring, WH – Wildlife Health

7-Year Plan Task	Task Description	FY 2012 Accomplishments	FY 2013 Work Plan
Region 8 I&M Priorities			
EIP 1.2-1.4	Inventory and Monitoring Plans (IMPs)	<ul style="list-style-type: none"> Completed project plan for developing Habitat Management Plans (HMPs) and IMPs for Region 8 refuges. 	<ul style="list-style-type: none"> Will complete one HMP and IMP for Anaho Island NWR.
EIP 3.1-3.2	Development of protocols	<ul style="list-style-type: none"> See BIM 	<ul style="list-style-type: none"> See BIM
EIP 4.1	The I&M and Planning Chiefs will hold a joint meeting in December 2012 to identify at least one area where monitoring data could be used to better inform the next round of CCPs.	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> Region 8 coordinator attended meeting with Planning Division
WRIM 1.6	WRIA Completion	<ul style="list-style-type: none"> One draft WRIA report and geospatial dataset completed; data collection initiated for 10 WRIsAs. Inventoried water control structures and developed conceptual water flow and infrastructure maps for 8 refuges. Draft workflow for completing WRIsAs completed. Report on feasibility and cost of organizing access to water rights/supply information completed. CAP reports for 2 refuges completed 	<ul style="list-style-type: none"> Complete 3 WRIA reports and associated geospatial datasets Establish standard documented workflow for completing WRIsAs Determine next phase for water rights/supply information enhancement project Complete template metadata of geospatial WRIA components for pilot refuges
WRIM 4.1 4.5	Coordinated water quality and quantity effort	<ul style="list-style-type: none"> Region 8 and the NRPC contributed funding resources for two water quality monitoring projects through the Environmental Contaminant Program: 1) long-term water quality monitoring station at Otay Bay at San Diego Bay and 2) support of an ongoing water quality monitoring study at Butte Sink WMA. The objectives of the funding were to support coordination for new and existing water monitoring at or near refuges. 	<ul style="list-style-type: none"> Region 8 will continue this program as funded.
SD 7.1	Species database module	<ul style="list-style-type: none"> Led national team developing recommendations for a species information system; developed project plan for pilot species data management system (see also DM 5.1-5.2). 	<ul style="list-style-type: none"> Lead national working group in identification of user needs and recommendations for Species Information System. See also DM 5.1-5.2

7-Year Plan Task	Task Description	FY 2012 Accomplishments	FY 2013 Work Plan
Region 8 I&M Priorities			
DM 1.1 1.2	ServCat full-scale implementation	<ul style="list-style-type: none"> Collected and catalogued legacy data (2117 documents from 24 refuges); created draft workflow for capturing refuge data 	<ul style="list-style-type: none"> Depending on staffing continue implementation of ServCat project.
DM 2.1-2.3	ServCat technical support and data management	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> Data Managers will provide technical support, perform quality control and generate customized reports
DM3.1	PRIMR full-scale implementation	<ul style="list-style-type: none"> PRIMR populated for all field stations in Region 8: 46 refuges and 5 Wetland Management Areas 	<ul style="list-style-type: none"> Analyze PRIMR database to inform assessment of refuge inventory and monitoring needs for R8 strategic planning.
DM 4.1-4.3	Provide technical support and management of the data residing in PRIMR	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> Data Managers will provide technical support, perform quality control and generate customized reports
DM 5.1-5.2	Species occurrence data entered into species database module by the end of FY 2018	<ul style="list-style-type: none"> Completed report on Region 8 Species List documentation project. 	<ul style="list-style-type: none"> Continue R8 project to gather, standardize and document species on Region 8 refuges using existing refuge data.
ISIM 1.1	Development of an early-detection inventory and monitoring process for the Refuge System	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> Complete development and testing of database tool to identify, document and prioritize invasive plant threats (current and future) for strategic management on National Wildlife refuges. R8 staff will participate on the IM national working group.
ISIM 2.1-3.1	Assessment and implementation of I&M Invasive Species Pilot project	<ul style="list-style-type: none"> R8 staff participated in the National Pilot Project, and one of the 4 sites was at San Diego NWR. 	<ul style="list-style-type: none"> R8 staff to continue to participate in the national Pilot Project.
ISIM Regional	Other Invasive Species work; not sure where this fits.	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> Complete at least two invasive plant inventories of Region 8 refuges to demonstrate development of objectives, prioritization of invasive species threats, and survey methods. Assist at least one refuge with utilizing inventory and monitoring data to adapt an existing weed control plan, demonstrating the value of inventory and monitoring data in strategic management. Participate in multi-partner effort to adapt an existing tool (WHIPPET) to prioritize and strategically allocate limited resources for invasive plant treatment actions on refuge lands using spatial inventory data. Publish results of the Lepidium latifolium inventory study to demonstrate how inventory data can inform strategic management.
ESA 1.1-2.1	Develop a definitive list of endangered, threatened, delisted/monitored, and candidate species on refuges	<ul style="list-style-type: none"> R8 I&M staff used data already gathered for R8 refuges during the Needs Assessment to respond to national data call, reducing effort required from refuges to truth the definitive list. 	<ul style="list-style-type: none"> R8 I&M staff will continue to support the effort to create definitive lists of listed species on refuges, and whether they are being monitored.

7-Year Plan Task	Task Description	FY 2012 Accomplishments	FY 2013 Work Plan
Region 8 I&M Priorities			
VHM 1.1, 1.2, 2.1	Provide national and regional summaries of vegetation resources on refuge land using existing data.	<ul style="list-style-type: none"> Collaborating with Region 8 Planning Division and the University of Nevada, R8 I&M staff completed field work for vegetation mapping at Anaho Island and Ruby Lake NWRs. Began draft workflow and standards for vegetation mapping, quality assessment/quality control, and accuracy assessment. Developed draft protocols and tested protocols in the field at Ruby Lake NWR. 	<ul style="list-style-type: none"> Continue collaboration with Region 8 Planning and the University of Nevada to complete vegetation mapping at Anaho Island and Ruby Lake NWR. Collect field data at Stillwater NWR using draft protocols and standards developed at Anaho and Ruby Lake NWRs.
BIM 1.0, 1.2	Establish standardized, integrated and coordinated bird monitoring across the Service	<ul style="list-style-type: none"> Region 8 staff participated on Bird Team 	<ul style="list-style-type: none"> Region 8 staff participates on Bird Team
BIM 2.1-2.2	Produce national and/or regional protocol frameworks that facilitate standardized bird inventory and monitoring across the Service	<ul style="list-style-type: none"> Provided protocol development and standardization, and technical support for Mid-winter Waterfowl Surveys in Region 8: piloted GPS-based aerial survey protocol for San Francisco Estuary in January 2012; created and led observer training. Led the development and implementation of a new marsh bird monitoring protocol based on a national standardized protocol in the San Francisco Estuary. Partners included San Francisco Complex of refuges, PRBO Conservation Science, CA Coastal Conservancy, San Francisco Bay Joint Venture, USGS, East Bay Regional Parks District, CA Dept. of Fish and Wildlife. 	<ul style="list-style-type: none"> Mid-winter Waterfowl Surveys: Continue testing and developing new survey methodology (GPS-based aerial survey protocol), create standardized data management/reporting procedures and revise the San Francisco Estuary sampling scheme. Continue testing and refining marsh bird monitoring protocol in San Francisco Estuary. Begin evaluating correction factors between new and old protocols. Develop a plan for expanding project to other R8 refuges that monitor marsh birds.
BBI 1.1-1.5	Create a definitive (documented) list of species for the Refuge System that is accessible, updatable, and expandable by the end of FY 2018	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> Analyze species lists and other factors to determine what inventories should be conducted on refuges. Consider "regional" inventories with partner land owners near refuges. This process will be unique to each refuge (or set of refuges).
BBI 2.1-2.3	Determine what baseline inventories need to be done by the end of FY 2017	<ul style="list-style-type: none"> NA 	<ul style="list-style-type: none"> Prepare for one collaborative project with California Academy of Sciences and San Francisco State University to address the need for species inventories and/or research on one or more refuges.
AM 1.5	Refuge Habitat Management Database	<ul style="list-style-type: none"> Conducted pilot project for standardization of Refuge GIS data to prepare for use of habitat management database. Completed draft interim report. 	<ul style="list-style-type: none"> Continue to collaborate with refuge staff to prioritize data collection, standardization and testing the use of a habitat management database. The continuation of this project is dependent on availability of refuge staff.

7-Year Plan Task	Task Description	FY 2012 Accomplishments	FY 2013 Work Plan
Region 8 I&M Priorities			
SLR 2.1	Acquire baseline data needed to understand and model sea level rise and other climate related changes to coastal habitats	<ul style="list-style-type: none"> Continued collaboration with USGS (lead) to model sea level rise effects of coastal tidal marsh refuges: baseline inventories (elevation, vegetation, tidal behavior, sediment) completed for Seal Beach, Tijuana Slough, San Diego Bay and Humboldt Bay refuges. Bathymetric surveys completed for San Pablo Bay NWR. As part of a multi-partner team, completed a report summarizing a structured decision-making workshop on developing coastal tidal marsh climate adaption strategies. Led effort to compiled long-term monitoring datasets (refuge and USGS) for federal endangered salt marsh harvest mouse and provided to USGS for future vulnerability analysis. 	<ul style="list-style-type: none"> Continued collaboration with USGS to complete sea level rise modeling reports for four coastal tidal marsh refuges by May 2013. Participate in multi-partner effort to assess vulnerability of priority natural resources and develop climate adaptation strategies at Seal Beach NWR using recent climate models. *Dependent upon funding from Department of Defense Legacy program. Partners include USGS and EcoAdapt.
WRIM Regional	Climate Change--fresh water supply	<ul style="list-style-type: none"> Pilot project to evaluate the effect of climate change on water supply and wetland management at selected refuges using downscaled climate change projections. Partners include USGS and University of California, Davis. Publication planned for FY 2013. 	<ul style="list-style-type: none"> Pilot project to evaluate the effect of climate change on water supply and wetland management at selected refuges using downscaled climate change projections. Partners include USGS and University of California, Davis. Publication planned for FY 2013.
EIP Regional	Partnerships with LCCs	<ul style="list-style-type: none"> Giselle on Science Committee of CA LCC; Kaylene on Informatics Committee. Collaboration (including funding) on two CA LCC projects: "Setting Regional Strategies for Invasive Plant Management Using CalWeedMapper", "Sea-level Rise Modeling Across the California Salt Marsh Gradient for Resource Managers. 	<ul style="list-style-type: none"> Continued participation in LCC teams. Giselle on UAT for centralized PRIMR. Continued collaboration on projects jointly funded.
EIP Regional	Other Partnerships	<ul style="list-style-type: none"> Collaboration with University of California, Davis Watershed Center and Information Center for the Environment on legacy data, data analysis, water resources inventory and assessments. Collaboration with University of Nevada, Reno on vegetation mapping field surveys. Collaboration with Region 8 Environmental Contaminants Program on Contaminant Assessment Process projects. Collaboration with California Invasive Plant Council and U.S. Forest Service to adapt a spatial tool for invasive species management. Collaboration with Region 8 Environmental Contaminants Program on Contaminant Assessment Process projects. 	<ul style="list-style-type: none"> Continue collaborations and identify new collaborations.